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**The support to the production of renewable electricity in the European Union
Guidelines on State Aid for Environmental Protection and Energy 2014-2020:
an incoherent approach to the energy transition or a successful balancing of
policy objectives?**

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List of Acronyms

CEER	Council of European Energy Regulators
COP	Conference of the Parties (under the United Nations Framework Convention on Climate Change)
DG COMP	Directorate-General for Competition (European Commission)
DG ENER	Directorate-General for Energy (European Commission)
EEAG	Guidelines on State Aid for Environmental Protection and Energy 2014-2020
ETS	EU Emissions Trading System
EU	European Union
FiT	Feed-in-Tariffs
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
LCOE	Levelized Cost of Electricity
MS	EU Member States
PV	Photovoltaic
RES-E	Electricity from renewable energy sources
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the EU
UNFCCC	United Nations Framework Convention on Climate Change

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1. Abstract

In 2014, the European Commission approved its Guidelines on State Aid for Environmental Protection and Energy 2014-2020 (EEAG), imposing an obligation on European Union (EU) Member States to provide aid to renewable electricity on the basis of competitive bidding processes (tenders). That obligation has caused wide debate, and led to strong criticism by certain actors, who accused the European Commission of halting the progress of the EU towards an electricity system powered almost only by renewables, necessary to reach the EU's pledges under the United Nations Framework Convention on Climate Change (UNFCCC). By identifying and analysing four main issues around which that debate evolves, this thesis finds that criticism is justified. However, the observed lack of coherence can be corrected with some minor adjustments, thus allowing the EU to reach its obligations under the UNFCCC and cater to different policy objectives.

En 2014, la Commission européenne a approuvé ses Lignes directrices concernant les aides d'État à la protection de l'environnement et à l'énergie pour la période 2014-2020, qui imposent aux États membres de l'Union européenne l'obligation de fournir les aides à l'électricité renouvelable sur la base de procédures de mise en concurrence (appels d'offres). Cette obligation a suscité un large débat et de vives critiques de la part de certains acteurs, qui ont accusé la Commission européenne de mettre fin aux progrès de l'UE vers un système électrique fonctionnant presque uniquement avec des énergies renouvelables, nécessaire pour respecter les engagements de l'UE sous la Convention-cadre des Nations Unies sur le changement climatique (CCNUCC). Ce mémoire identifie et analyse les principaux points de désaccord dans ce débat, et conclut que les critiques sont justifiées. Toutefois, le manque de cohérence observé peut être corrigé moyennant quelques ajustements mineurs, qui devraient permettre à l'UE de s'acquitter de ses obligations au titre de la CCNUCC et soutenir une transition énergétique qui répond à des objectifs politiques variés.

2. Introduction to the research

2.1. Problem definition and research question

At the end of 2015, the 21st Annual Conference of the Parties (COP21) under the United Nations Framework Convention on Climate Change (UNFCCC) was held in Paris. By endorsing the "Paris Agreement", the COP21 set the ambitious and historic goal of "holding the increase in the global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels"¹. The times are indeed serious: according to the Intergovernmental Panel on Climate Change (IPCC), in the absence of a substantive and sustained action to reduce greenhouse gases (GHG), there will be long-lasting changes on all components of the climate system, which could lead to "severe, pervasive and irreversible impacts for people and ecosystems"².

Despite the growth in renewable energy production, the electricity sector is still today one of the largest emitters of greenhouse gases. According to the IPCC³, electricity and heat production accounted for a quarter of global CO₂ emissions (2010 data). This figure is similar for the EU⁴. Thanks to large technology improvements in renewable energy, one of the most cost-effective climate-change mitigation strategies is the reduction of the carbon intensity of electricity production⁵.

In March 2015, the European Union (EU) committed itself to reduce its greenhouse gas emissions by 40% by 2030 compared to 1990⁶. In the EU, the decarbonisation of the energy sector was –and still is– very much focused on the promotion of electricity from renewable non-fossil energy sources such as wind, solar, ocean energy and hydropower⁷. In the past decade, EU thus positioned itself as a leader in promoting low-carbon solutions and GHG reductions: between 2004 and 2014, the share of renewables in the electricity production went from 14% to 27% and, in 2015, greenhouse gas emissions in the EU were already down by 22 % compared to 1990 levels.

There is consensus both among researchers and stakeholders that the leap in renewable electricity production in Europe was due to two factors: clear targets and support programmes funded by the Member States of the EU, in order to push (the at-that-time-uncompetitive) renewable energy on the market. The largest part of these support mechanisms was provided as "feed-in tariffs" and "feed-in

¹ UNFCCC. (2018). *The Paris Agreement – Publication*.

² IPCC. (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC: Geneva, Switzerland. Page 56 and following.

³ *Ibid.* p. 47

⁴ European Environment Agency. (2018). *Annual European Union greenhouse gas inventory 1990: Submission to the UNFCCC Secretariat*. European Environment Agency: Copenhagen.

⁵ IPCC. (2014). *Op cit.* p. 99-100

⁶ Latvian Presidency of the Council of the European Union, European Commission. (2015). *The INDC of the European Union and its 28 Member States* [Presentation]

⁷ A definition of "renewable energy sources" under EU law can be found in European Commission. (2014). *Communication from the Commission: Guidelines on State aid for environmental protection and energy 2014-2020*. Official Journal of the European Union C200/1, 28 June 2014. "'Renewable energy sources' means the following renewable non-fossil energy sources: wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases."

premiums”⁸. Those support measures provided all renewable electricity producers with a guaranteed price –determined by State authorities– for the electricity produced by renewable sources. Those support mechanisms covered the cost-difference between the renewable electricity production and the price for conventionally-produced electricity (nuclear, coal and gas), which used to be cheaper than renewable electricity.

While the EU GHG emission targets were set at the EU level, the support programmes were decided nationally, with the European Commission making sure that they respect EU competition law, and, more specifically, EU law on state aid. EU state aid law has been a pillar of EU law since the very beginnings of the European project⁹. Its aim is to avoid that an EU Member State provides aid to a company, thus giving it a competitive advantage over other companies in the single market. As will be explained in Section 3.1., competition and state aid law are closely linked to and have an impact on EU climate and energy policies.

The rise of renewable electricity production (RES-E), achieved through support programmes that complied with EU state aid rules, did however not go without consequences. Most importantly, it did not happen without a cost for consumers, as the subsidies to fund renewable electricity were mostly funded through levies and taxes collected from households. This dramatically increased the cost of energy for households in the EU. Today, consumers pay around 25% more for their electricity than in 2008, and this was largely due to increases in charges to fund renewable energy sources¹⁰. At the same time, RES-E is becoming increasingly competitive with “conventional” electricity sources¹¹, thus reducing the argument in favour of public support.

The rising cost for consumers and the need to include RES-E into markets were the two main reasons behind the 2014 European Commission’s review of the rules on state aid applicable to renewable energy and the adoption of the Environmental and Energy State Aid Guidelines (EEAG)¹², which describe the rules according to which the European Commission (the EU’s executive arm) will assess whether aid given by a Member States authorised or not under EU Treaties.

The reasoning underlying the 2014 EEAG¹³ is that renewable energy sources will become competitive and therefore subsidies should be phased out in a degressive way. In order to reach that target, the Commission established that aid had to be provided based on “market-based instruments”, that is, auctioning and competitive bidding processes, which “should normally ensure that subsidies are

⁸ FiT typically provide a fixed or guaranteed price over a certain period of time for all renewable electricity produced; generally, they come with an obligation for utilities to buy this electricity. Feed-in-Premiums do not include an obligation to buy the electricity produced but oblige renewable electricity producers to sell their electricity on the wholesale market while providing a premium that covers the difference between the wholesale and the production price. For further information, see Section 3.1. page 16.

⁹ “Aids Granted by States” are already regulated in Title 1, Section 3 of The Treaty Establishing The European Economic Community from 1957.

¹⁰ Agency for the Cooperation of Energy Regulators, Council of European Energy Regulators. (2018). *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017 - Electricity and Gas Retail Markets Volume*. P. 8

¹¹ Renewable Energy Policy Network for the 21st Century. (2015). *The First Decade: 2004-2014*. P. 19-20

¹² European Commission. (2014d). “State aid: Commission adopts new rules on public support for environmental protection and energy” [Press release].

¹³ European Commission. (2014). *Op. cit.*

reduced to a minimum in view of their complete phasing out". Therefore, since 2014, the way EU countries provide subsidies to renewable energy is regulated in detail through the EEAG.

Since their inception, the EEAG and the specific rules on subsidies to RES-E have created a strong debate in specialised circles, and were criticised by a series of actors, from politicians to NGOs and researchers¹⁴. The main piece of criticism was that those new rules were the product of lobbying by conventional energy producers and would halt the progress of the EU towards an electricity system mainly based on renewables, which is necessary to mitigate climate change. Indeed, in the last years, the EU has slowed its pace towards reaching the energy and climate targets it had set itself.

Today, RES-E makes up around one third of electricity production¹⁵. However, investment in renewable electricity in Europe has been falling since 2011, considerably reducing the EU's initial leadership in renewables¹⁶. This situation is problematic if we look at the fact that an "almost carbon-free" EU by 2050 will require a major transformation of the sector, requiring that the annual increase in renewable supply not only be maintained but actually increased¹⁷.

The aim of this thesis will thus be to shed light on the controversies caused by the adoption and implementation of the support mechanisms as prescribed by the EEAG, in order to determine whether they contribute to the EU's progress towards its energy and climate objectives or whether, on the contrary, they are an obstacle to reaching them. Therefore, the question that this thesis seeks to answer is **whether the provisions on RES-E in the EU state aid guidelines on energy and environment adopted in 2014 (EEAG) are in line with the EU objective of increasing production of electricity from renewable sources and with the general EU objective of reducing CO2 emissions.**

2.2. Relevance

The last couple of years have seen major developments in climate and energy policy both at the EU and international level. The "Paris Agreement" entered into force in November 2016, committing its signatories to the historic milestone of "holding the increase in the global average temperature to well below 2°C above pre industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels"¹⁸. That same month, the European Commission presented its "Clean Energy Package", proposing a major review of the EU energy legislation in order to boost the clean

¹⁴ More details are provided in the literature review, Sections 3.2. and 3.3.

¹⁵ European Commission. (2017). EU Energy in Figures: Statistical Pocketbook 2017. Publications Office of the European Union: Luxembourg, July 2017. Page 90.

¹⁶ Frankfurt School-UNEP Centre/BNEF. (2018). *Global Trends in Renewable Energy Investment 2018*. Frankfurt School of Finance & Management: Frankfurt am Main

¹⁷ Jacobsson, S., Bergek, A., Sandén, B. (2017). "Improving the European Commission's analytical base for designing instrument mixes in the energy sector: Market failures versus system weaknesses". *Energy Research & Social Science*, 33 p. 11–20.

¹⁸ UNFCCC. (2018). *Op. cit.*

energy transition of the EU¹⁹. In addition, the EEAG only apply until 2020 and should therefore soon be reviewed²⁰.

At a moment when the EU is asking itself how to reach the Paris target through a “socially-fair transition in a cost-efficient manner”²¹, the reflection on whether and how renewable electricity should be supported is therefore highly relevant. This thesis aims at being a humble contribution to this debate.

2.3. Theoretical framework

The energy transition, understood as the transformation of the electricity system into a near-carbon free system, is a complex transformatory process requiring large-scale transformations²². Over the last 15 years, a “burgeoning, interdisciplinary literature” has developed on how such transitions occur, evolving from “discussions about specific instruments suitable for internalising negative externalities” to the recognition that “a multiplicity of instruments is needed to foster successful transitions”²³.

The literature studying sustainability transitions builds on three key disciplinary foundations: environmental economics, innovation studies, and policy sciences²⁴. Environmental economics has mostly studied the advantages and disadvantages, or strengths and weaknesses, of different combinations of instruments and their interactions, most notably between the ETS and other climate and energy policy instruments. In contrast, policy sciences literature and the more recent literature in the field of innovation studies take a broader view, analysing the “dynamic nature” of policy mixes and the coherence of (long-term) targets and multiple goals.

This more wholistic view in studying policy that supports the energy transition is the approach that we will try to take in this thesis, where we will seek to analyse the EEAG, their objectives and the instruments they put in place in the broader context of the “energy transition”. Therefore, this thesis does not seek to be a legal analysis of the EEAG. We will instead focus on the broader interactions between the tender mechanisms prescribed by them, the energy system and different actors in that system.

The theoretical framework of this work therefore joins the theory of technological transitions developed by Geels, who defines Technological Transitions as “major technological transformations in the way societal functions such as transportation, communication, housing, feeding, are fulfilled”,

¹⁹ European Commission, “Commission proposes new rules for consumer centred clean energy transition”. [Webpage]. 30 November 2016.

²⁰ European Commission. (2015). *Communication from the Commission [...]: A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy - Annex: Roadmap for the Energy Union*.

²¹ European Commission. (2018). *Communication from the Commission [...]: A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*.

²² Jacobsson, S., Bergek, A., Sandén, B. (2017). *Op. cit.*

²³ Rogge, K.S., Kern, F., Howlett, M. (2017). “Conceptual and empirical advances in analysing policy mixes for energy transitions”. *Energy Research & Social Science*, 33 p. 1–10

²⁴ *Ibid.*

involving not only “technological changes, but also changes in elements such as user practices, regulation, industrial networks, infrastructure, and symbolic meaning”²⁵.

Following Geels’ theory, societal functions are fulfilled by “sociotechnical configurations” or “regimes”, comprising industrial networks, culture and symbolic meaning, infrastructure, techno-scientific knowledge, sectoral policy and market-user practices, embedded in “socio-technical landscapes”, consisting of a set of “deep, structural trends” such as oil prices, economic growth, broad political coalitions, cultural and normative values, etc.²⁶

Sociotechnical regimes, in turn, are comprised of various dimensions, including: industrial networks, culture and symbolic meaning, infrastructure, techno-scientific knowledge, sectoral policy, rules and market-user practices. The different dimensions of the regime are linked and co-evolve. These links lead to path dependence and resistance to change²⁷. In addition, each dimension also has its internal dynamics. These internal dynamics may result in ‘tensions’, indicating “uncertainty and differences of opinion”. Tensions may lead to periods in which linkages between the different dimensions of the regime are weakening²⁸.

Innovations that drive transitions (such as renewable energy technologies) are generated in what Geels calls “niches”, understood as “incubation rooms” that “provide locations for learning processes” and space to build the “social networks which support innovations”, that is, supply chains and user-producer relationships. According to Geels, transitions come about through an alignment of developments within and between all three levels (niches, sociotechnical regime and landscape), which will eventually result in the substitution of one regime by another. This substitution takes decades, and is divided in four phases, where radical innovations move from niches into the regime and eventually substitute the existing regime. In the last step, “the new regime becomes institutionalized and increasingly taken for granted”²⁹. While it is obvious that in 2018 renewable energies are no longer a “niche” category, they still exist within a regime that was set up to support other technologies, thus creating tensions.

Tensions around the issue of support mechanisms are easily observed when it comes to the EEAG and, more specifically, the support mechanisms for RES-E. We will analyse these tensions in order to study the “direction” and the “alignment” of the transition dynamics. The analysis of these contradictions (or their absence) should help us provide a small contribution to the question of the pace of the EU energy transition: will it continue on a sustained pace, be slowed-down or halted? And, more specifically, will the EU manage to reach a nearly decarbonised electricity sector by 2050?

This thesis will thus aim at shedding some light at part of the “sociotechnical configuration” that provides electricity supply to a country, and of which competition law (and therefore the EEAG) are part.

²⁵ Geels, F. W. (2002). “Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study”. *Research Policy*, 31. p 1257–1274

²⁶ *Ibid.*

²⁷ Geels, F.W, Sovacool, B. K., Schwanen, T., Sorrell, S. (2017). “The Socio-Technical Dynamics of Low-Carbon Transitions”. *Joule*, 1. P. 463–479.

²⁸ Geels, F. W. (2002). *Op. cit.* p. 1262

²⁹ Geels, F.W, Sovacool, B. K., Schwanen, T., Sorrell, S. (2017). *Op. cit.*

2.4. Methodology

In order to analyse the effect of the RES-E support mechanisms as regulated by the EEAG on the EU energy transition, we have chosen to focus on the “coherence” between that specific state aid policy instrument and the broader EU objectives. “Coherence” is therefore not studied as an objective “per se” but to identify the interactions between the EEAG and the other elements of the electricity “regime” and the direction of the evolutions in the EU energy regime towards a decarbonised electricity sector.

Multiple definitions of “policy coherence” exist³⁰. This thesis will be based on the approach taken by Nilsson *et al.*³¹, who define policy coherence as “an attribute of policy that systematically reduces conflicts and promotes synergies between and within different policy areas to achieve the outcomes associated with jointly agreed policy objectives”. Following those authors, “policy coherence” refers to “policy outputs” and “policy implementation”. Policy inputs, goals and policy processes are taken to be “policy integration” and therefore not studied directly, although –of course– the policy-definition process and the outcomes of a given policy are closely linked³².

In their paper, Nilsson *et al.* present a framework for analysing policy coherence in a European Union setting that focuses on the interactions between environmental policy objectives and sectoral policies (cohesion policy, energy policy, etc.). The paper develops a three-step analytical approach including: an inventory of the policy objectives, a “screening matrix” to find the relevant interactions based on an expert panel and finally the analysis of the most relevant interactions identified in the screening. The paper therefore provides a useful starting point to analyse this inherently complex and qualitative question. The methodology we will use in the work, inspired by this three-step approach, is explained below.

Step 1. Literature Review and Inventory of Policy Objectives

The purpose of this inventory step is to get a comprehensive view of the policy objectives of key environmental and sectoral policies and interactions³³. While in our reference paper the authors look at very large policy areas and then use the screening to identify relevant policy instruments and measures, in this thesis, we actually jump one step and already assume that the tender mechanisms put in place by the EEAG do interact with the development of renewables and, in consequence, CO2 emission reductions. This assumption is confirmed by the literature review (Section 3).

Given that the scope of our analysis was already delimited beforehand through the information gathered in the first literature review, it may have seemed that doing a comprehensive inventory of

³⁰ Rogge, K. S., Kern, F., Howlett, M. (2017). *Op. cit.*

³¹ Nilsson, M., Zamparutti, T., Petersen, J.E., Nykvist, B., Rudberg, P., McGuinn, J. (2012). “Understanding policy coherence: analytical framework and examples of sector-environment policy interactions in the EU”. *Environmental Policy and Governance*, 22 (6). pp. 395-423

³² *Ibid.* p. 396

³³ *Ibid.*

objectives was not really relevant. The inventory did however allow us to get a detailed overview of the policies we analyse and to make sure we were not overlooking any important details. In addition, although not the main aim of this research, this step (described in Section 4) allowed us to briefly identify whether there had been any coherence objective at the policy-development phase.

Step 2. Screening

The objective of this step is to do a quick map of the overall interactions between policy areas. Nilsson *et al.* base the screening on an “assessment exercise” that gathers environmental and sectoral experts in a workshop. A “screening matrix” containing the objectives identified in step 1 is constructed by the researchers and then filled in through an “iterative process” between an expert panel and the researchers. Nilsson *et al.* explicitly state that that screening did not analyse the nature of the interaction, which is only done in the last step by the authors themselves.

In our case, the screening exercise, already restricted to the specific interaction between the tender systems and the broader energy and climate objectives, helped us determine the strength and the nature of the interactions (i.e., why experts think the interaction is weak or strong and why, if it is strong, it is in synergy or in contradiction). Given that an expert panel was difficult to organise in the context of a university thesis, we did our screening by performing qualitative one-to-one non-directive interviews.

Non-directive interviews were carried out with six experts working in energy policy and renewable energy, fitting the recommendation from Nilsson *et al.*³⁴. Experts were selected through the personal and professional network, were therefore mostly based in Brussels and active in EU policy and interest representation. A description of the entities those experts work for can be found in *Annex I*. While we regret that it was not possible to find experts from the European Commission’s Directorate-General for Competition and the solar industry, we consider that the distribution in terms of expertise and viewpoints is varied enough to allow for a relevant analysis.

As a starting point for the interview, all experts were asked the same question: **“According to you, are the EU state aid guidelines on energy and environment adopted in 2014 in line with the EU objective of increasing production of electricity from renewable sources and with the general EU objective of reducing CO2 emissions?”**³⁵ The interviews were recorded and transcribed (see *Annex II* for the anonymised transcriptions).

³⁴ “A combined panel of scientists and expert policy officers is recommended, with an ideal number of four to eight participants depending on the sector and how multifaceted it is in terms of environmental interactions”. *Ibid.* p. 401

³⁵ As the interviews were performed right after the literature review, the main assumption was that the competitive bidding mechanisms prescribed by the EEAG had an impact on the development of renewable capacity, but not on other EU objectives, which were identified later (Section 4).

Step 3. In-depth analysis of interactions

In this step, we analyse the interviews in order to determine the main types of interaction between policy areas. The analysis is based on a thematic analysis to determine what kind of issues are brought up most often by the experts. Those issues are then each analysed in detail, and complemented with supporting data from other sources.

Finally, the conclusion performs a final assessment of the level of coherence between the EEAG and the EU climate and energy objectives and provides a series of recommendations to improve coherence.

3. Context and literature review

This section starts with an overview of the context in which this work is set, and continues with a summary of the literature consulted on the topic of the EEAG, competitive bidding for renewable energy, and their overall interactions and coherence within a larger policy context.

Given that the tender mechanisms prescribed by the EEAG have not been applied since long, the existing literature is scarce and quite recent³⁶. Most of the academic literature we consulted limits itself to study the efficiency of tender (competitive bidding) mechanisms and does not analyse the general coherence and interactions between support schemes and larger policy objectives. This does however not mean that the existing literature should be dismissed. On the contrary, some important lessons and assumptions can be drawn from it.

3.1. State aid as a key element to understand EU energy and climate policy

In the last decades, EU electricity markets have undergone profound change. Renewables have become an integral part of the system, driven by EU policy and by State funding. This section aims at setting the scene and providing some useful background information to better understand the more technical and legal issues that will be addressed in this thesis.

Although coal and nuclear were at the origin of the foundations of the European institutions (Treaties establishing the European Coal and Steel Community from 1951 and the European Atomic Energy Community from 1957³⁷), the construction of an internal energy market started rather late. In the late 1990, the EU adopted its first electricity and gas directives, aimed at breaking up national monopolies by opening up EU countries' wholesale markets to competition. These directives were revised in 2003-2004 by texts that also opened up retail (household) markets to competition. Finally, the current legislation (frequently dubbed as the "3rd Energy Package") was adopted in 2009³⁸. The "3rd Package" aimed at completing the liberalisation through the "unbundling" of production, transport and supply activities and strengthened consumer rights in the sector.

In line with the developments at the UN level (adoption of the UNFCCC in 1992 and the Kyoto Protocol in 1997), climate change and renewable energy also entered the EU policy scene in the 1990, and the

³⁶ Toke, D. (2015). "Renewable Energy Auctions and Tenders: How good are they?". *International Journal of Sustainable Energy Planning and Management*, 08. P. 43-56; Gephart, M., Klessmann, C., Wigand, F. (2017). "Renewable energy auctions – When are they (cost-) effective?". *Energy & Environment*, 28 (1–2). P. 145–165

³⁷ CVCE.EU. "The birth of the community of Europe" [webpage]. Available at: <https://www.cvce.eu/en/collections/unit-content/-/unit/02bb76df-d066-4c08-a58a-d4686a3e68ff/a419a4f2-3a70-4b84-b3e1-2de387dbc2da>

³⁸ Gouardères, F. (2018). "Internal energy market". Fact Sheets on the European Union. European Parliament: Brussels. Available at: <http://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market>. [Last accessed on 24/12/2018]

1st EU Renewable Energy Directive was adopted in 2001³⁹. That first Directive set two indicative targets: one of 12% for renewable energy in gross national energy consumption by 2010 and another one of 22,1 % for the share of electricity produced from renewable energy sources in total Community electricity consumption by 2010. That directive was reviewed in 2009 with a new text that sets a target of at least a 20 % share of energy from renewable sources in the Community's gross final consumption of energy in 2020 as well as binding targets at the national level.

Through those policies, the EU positioned itself as a leader in promoting low-carbon solutions and GHG reductions: between 2004 and 2014, the share of renewables in the EU electricity production went from 14% to 27%⁴⁰. In 2016, renewable energy represented almost 30% of total electricity generation⁴¹. In 2015, greenhouse gas emissions in the EU-28 were down by 22 % compared with 1990 levels⁴².

There is consensus both among researchers and stakeholders that the EU leadership in renewable electricity production was due to two factors: clear targets (which will be analysed in detail in Section 4.1.) and support programmes, especially in the form of “feed-in tariffs” and “feed-in premiums”⁴³. Those support measures provided renewable electricity producers with a guaranteed price for a fixed time for the electricity produced by renewable sources, thus covering the cost-difference between the renewable electricity production and the price for conventionally-produced energy, which used to be cheaper⁴⁴.

State support to companies is regulated by EU competition policy. Contrary to energy policy, where the EU has powers to legislate together with Member States, in the field of competition, the EU Member States have relinquished the legislative power to the EU. « State aid » rules are part of competition policy, and aim at preventing EU Member States from providing aid to a company, thus giving it a competitive advantage over all the others. State aid is however allowed for certain purposes, established in Art. 107.2 and 107.3 TFEU. The Renewable Energy Directive also allows MS under its Art. 3.3. to set up support schemes to reach the targets of the Directive.

³⁹ Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market. Official Journal of the EU, L 283, 27.10.2001. Pages 33–40.

⁴⁰ European Commission. Eurostat. (2018, June). *Statistics Explained: Renewable energy statistics*. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics#of_electricity_generated_come_from_renewable_sources [Last accessed 05/01/2018]

⁴¹ *Ibid.*

⁴² European Commission. Eurostat. (2017, June). *Statistics Explained: Greenhouse gas emission statistics - emission inventories*. http://ec.europa.eu/eurostat/statistics-explained/index.php/Greenhouse_gas_emission_statistics [Last accessed 25/05/2018]

⁴³ Renewable Energy Policy Network for the 21st Century. (2015). *The First Decade: 2004-2014*. REN21: Paris; Morris, C., Jungjohann, A. (2016). *Energy Democracy : Germany's Energiewende to Renewables*. Palgrave Macmillan: London; Turmes, C. (2017) *Transition énergétique: une chance pour l'Europe*. Les Petits Matins: Paris; Butler, L., Neuhoff, K. (2008). “Comparison of feed-in tariff, quota and auction mechanisms to support wind power development”. *Renewable Energy*, 33. P. 1854–1867; Johansson, T. B., Turkenburg, W. (2004). “Policies for renewable energy in the European Union and its member states: an overview”. *Energy for Sustainable Development, VIII* (1)

⁴⁴ Kilinc-Ata, N. (2016). “The evaluation of renewable energy policies across EU countries and US states: An econometric approach”. *Energy for Sustainable Development*, 31. P. 83–90

Until recently, the most common support schemes put in place by MS to promote renewable electricity were Feed-in-Tariffs (FiT) and Premiums, in which prices for renewable electricity were administratively set by governments or public administration. Quota Systems/Green Certificates and, more recently, tenders, have been implemented to expose renewable energies to the market. Other instruments to support renewable energy, which will not be analysed here as they are beyond the scope of the thesis, include fiscal incentives, (preferential) grid access or access to finance⁴⁵. The following bullet points provide a short explanation of each of those systems:

- FiT were during a long time the most commonly used schemes. They were first implemented in Denmark and Germany, to become “the most popular RE support scheme in EU countries”⁴⁶. Today, under the EEAG, they can no longer be granted. FiT typically provided a fixed or guaranteed price over a certain period of time for all renewable electricity produced; generally, they came with an obligation for utilities to buy this electricity⁴⁷.
- Feed-in-Premiums, which can still today be allocated through tender mechanisms, do not include an obligation for incumbents to buy the electricity produced but oblige renewable electricity producers to sell their electricity on the wholesale market while providing a premium that covers the difference between the wholesale and the production price. It is therefore considered that this system exposes producers more to the market than feed-in tariffs⁴⁸.
- Quota systems generally oblige energy suppliers to purchase a given quantity of renewable energy through “green certificates”⁴⁹. Those certificates are traded at a price set by the market.
- Finally, tenders or reverse auctions –the mechanisms analysed in this thesis– are, strictly speaking, not a support mechanism by themselves but a way of allocating RES-E support, meaning that “they allocate support payments, such as feed-in tariffs, feed-in premiums or capacity payments, only to a limited number of RES-E projects through a competitive process”⁵⁰. Such mechanisms are compulsory under the EEAG and have become widely used in other continents too, with only six countries using them in 2005 against 67 in 2016⁵¹.

A market was thus created by using state aid to pull the demand for renewable electricity. State aid measures indirectly promoted the competition between producers of equipment (solar panels and turbines) and contractors⁵², driving down the costs of renewable electricity. For instance, between

⁴⁵ A comprehensive classification can be found in: International Renewable Energy Agency - IRENA. (2017) *Renewable Energy Auctions: Analysing 2016*. IRENA: Abu Dhabi. Page 38

⁴⁶ Kilinc-Ata, N. (2016). *Op. cit.*

⁴⁷ *Ibid.*; Butler, L., Neuhoff, K. (2008). *Op. cit.*

⁴⁸ European Commission. (2013). *European Commission guidance for the design of renewables support schemes* [Commission Staff Working Document SWD(2013) 439 final]. P. 8-9.

⁴⁹ *Ibid.* p. 10

⁵⁰ Gephart, M., Klessmann, C., Wigand, F. (2017). *Op. cit.*

⁵¹ International Renewable Energy Agency - IRENA. (2017). *Op. cit.*

⁵² Butler, L., Neuhoff, K. (2008). *Op. cit.*; Morris, C, Jungjohann, A. (2016). *Op. cit.*

2010 and 2015, the average cost of wind energy installations went down by 30% and the cost for PV was reduced by two-thirds⁵³. Today, renewable electricity is thought to be reaching so-called “grid parity” with fossil-fuel generation in most countries, meaning that it is generally considered to be cost-competitive with conventional electricity sources.

While those policies may have had a beneficial effect on the climate, the consequences for consumers were less beneficial: between 2008 and 2015 the average electricity price increased at an average annual rate of 3.2 %⁵⁴ increased competition and the increasing market-penetration of renewables have driven down wholesale markets, this benefit has not been passed on to consumers, who have seen their electricity bills go up in the last years due to increasing taxes and levies (*Figure 2*). According to the analysis from the European Commission, subsidies allocated to renewable energy accounted for 33 % of the total price in 2015, up from 14% in 2008⁵⁵.

In addition, due to the unexpected fall in renewable generation costs, as from the year 2010 several Member States had to review their support programmes in order to avoid soaring financing costs. This was most famously the case in Germany⁵⁶. Some countries even changed their policy retroactively, leading to a loss in investor confidence and a total stop in investments. The most well-known case was Spain, where investment fell spectacularly (see *Figure 1*), although other countries including Belgium, Bulgaria, the Czech Republic, Greece, Italy and Poland also introduced retroactive changes⁵⁷.

⁵³ European Commission. (2016c). *REFIT Evaluation of the Directive 2009/28/EC of the European Parliament and of the Council* [Staff Working Document SWD(2016)416 final]. Brussels, 30 November 2016.

⁵⁴ European Commission (2016d). *Report from the Commission [...]: Energy prices and costs in Europe* [COM(2016) 769 final]. European Commission: Brussels, 30 November 2016.

⁵⁵ *Ibid.*

⁵⁶ Morris, C., Jungjohann, A. (2016). *Op. cit.* p.294.

⁵⁷ European Renewable Energies Federation. (2013). *Policy Paper on Retrospective Changes to RES Legislations and National Moratoria*. 2020 Keep on Track Project: Brussels, May 2013.

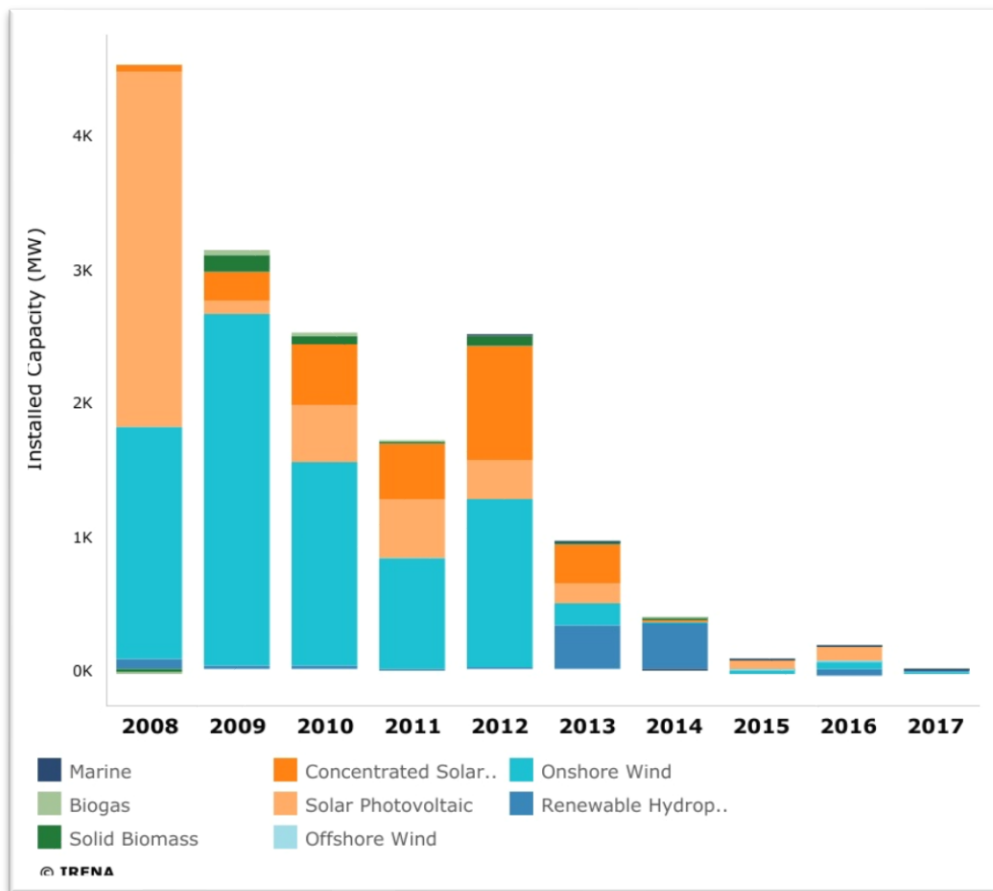


Figure 1 – Net additions to installed capacity in Spain 2008-2017. Source: IRENA

As already stated in the problem definition, the rising cost for consumers and the need to integrate increasingly competitive renewables into markets were the main reasons behind the 2014 European Commission’s review of the state aid rules given to RES-E, and explain why the EEAG are generally not considered to be in line with EU energy and climate objectives, as we will see in the next sections.

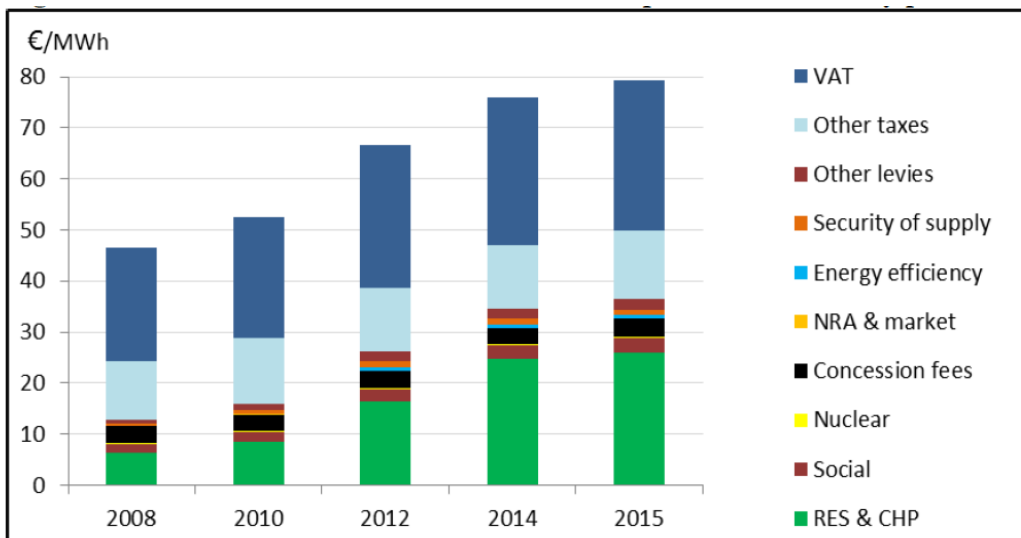


Figure 2 - Breakdown of the taxes and levies component of electricity prices. Source: European Commission (2016d). Report from the Commission [...]: Energy prices and costs in Europe. European Commission: Brussels

3.2. Competitive bidding as help for the incumbents

Part of the literature that looks at the EEAG in a larger context (especially from the field of political sciences) is quite critical of the text's coherence with the EU energy transition. The main argument put forward by critics is that the EEAG cater to the political interests of incumbent suppliers (i.e. former national monopolies), which are seen as opposed to the goal of supporting the energy transition⁵⁸. According to those authors, the participation in tenders is much easier for bigger companies (who have the human resources and financial capacity to deal with the high sunk costs of presenting a project) and citizens are pushed out of investing in RES-E. This view is mostly found in the grey literature we consulted⁵⁹. Some scientific literature⁶⁰ aligns with this vision, describing the EEAG as part of a "restoration campaign" by "vested interests" to halt the energy transition in Europe. However, while those scholars clearly state that the "guidelines are likely to be pernicious for the fast deployment of renewable electricity supplies", this statement does not seem to be backed up with further quantitative or qualitative research.

Another major issue identified in both grey and scientific literature relates to the "non-alignment" of the objectives and mechanisms of the EEAG with the realities of the energy system as it stands today. Those authors criticise that the EEAG oversee and do not tackle a series of crucial issues that stand in the way of the development of RES-E, including: the high level of subsidies handed out to fossil fuels, mostly in the form of tax rebates⁶¹; the insufficient inclusion of negative externalities in other energy vectors⁶² and the insufficient remuneration of renewables on wholesale energy markets⁶³. According to those authors, the EEAG do therefore not help to create a level-playing field between RES-E and electricity produced from "conventional" sources. We can therefore conclude that a large part of grey and scientific literature looking at the EEAG in a larger political context does not see them as coherent with the goal of promoting more RES-E.

On a more nuanced side, some authors⁶⁴ study the (economic) interactions between renewable support and other climate and energy policies without finding any clear tendencies that could speak for or against coherence between policies.

⁵⁸ Turmes, C. (2017). *Op. cit.* p. 183

⁵⁹ *Ibid.*; Morris, C, Jungjohann, A. (2016). *Op. cit.* p. 370-377.

⁶⁰ Verbruggen, A. *et al.* (2015). "Europe's electricity regime: restoration or thorough transition". *International Journal of Sustainable Energy Planning and Management*, 05. P. 57–68.

⁶¹ Turmes, C. (2017). *Op. cit.*, p.177; Hancher, L.. (2017). "Can the Treaty State Aid Regime Come to the Rescue of Climate Change?" [editorial]. *European State Aid Law Quarterly*, 16. EStAL: Berlin. P. 1-2.

⁶² Verbruggen, A. *et al.* (2015). *Op. cit.*

⁶³ Morris, C, Jungjohann, A. (2016). *Op. cit.*; WindEurope (2017). *Creating a Business Case for Wind After 2020: the Role of Revenue Stabilisation Mechanisms and Corporate PPAs* [Position Paper]. Wind Europe: Brussels.

⁶⁴ Duscha, V., del Río, P. (2017). "An economic analysis of the interactions between renewable support and other climate and energy policies". *Energy & Environment*, 28 (1–2). P. 11–33.

3.3. Competitive bidding vs. feed-in-tariffs and premiums: who wins?

Another part of the literature looks at the EEAG from an economic point-of-view. A lot of literature has been produced that compares the (cost)efficiency and effectiveness of different support mechanisms.

Concerning FiT and premiums, we see that there is consensus both in scientific and grey literature that those support mechanisms played an essential role in the growth in renewable electricity production in Europe in the last decade. Several authors argue that the EU leadership in RES-E was mainly driven by clear targets and ambitious support programmes (“feed-in tariffs” and “feed-in premiums”)⁶⁵. Those support mechanisms helped to pull the demand for renewable electricity and promoted the competition between producers of equipment (solar panels and wind turbines) and construction services, thus driving down the costs of renewable electricity⁶⁶.

Other authors find that tenders are more “cost-effective” than funding schemes based on administratively-set prices. Some authors⁶⁷ find “welfare losses” in subsidy schemes that fund generation (feed-in tariffs) when they incentivise the deployment of capacity if this is not needed. Others find that auctions deliver considerable cost savings compared to administratively set prices⁶⁸. Indeed, tenders are generally praised as a way to reveal the “real price” of technology⁶⁹ and several reports already see general price decreases due to “the competitive environment spurred by the auction”⁷⁰.

Nevertheless, the cost-effectiveness of tenders has also raised debates. First, some reports⁷¹ warn that it is difficult to compare auctions from one country to another and that other factors, such as capacity factors specific to a geographic area, access to finance, a conducive environment for investor confidence (reducing risk and therefore the cost of capital), general policy support and the specific design of the auction also need to be taken into account when analysing prices. Similarly, Craig Morris and Arne Jungjohann⁷² refer to the price increases observed with the introduction of the tender schemes in Germany to argue that tenders do not by themselves produce lower prices. While those concerns were dispelled for the German market by subsequent tender rounds⁷³, the same argument is used in the context of the Danish and South African markets by David Toke⁷⁴, who maintains that

⁶⁵ Renewable Energy Policy Network for the 21st Century. (2015). *Op. cit.*; Morris, C, Jungjohann, A. (2016). *Op. cit.*; Turmes, C. (2017). *Op. cit.*; Johansson, T. B., Turkenburg, W. (2004). *Op. cit.*; Butler, L., Neuhoff, K. (2008). *Op. cit.*

⁶⁶ Butler, L., Neuhoff, K. (2008). *Op. cit.*; Morris, C, Jungjohann, A. (2016). *Op. cit.*

⁶⁷ Andor, M., Voss, A. (2016). “Optimal renewable-energy promotion: Capacity subsidies vs. generation subsidies”. *Resource and Energy Economics*, 45. P. 144–158.

⁶⁸ Newbery, D. M. (2016). “Towards a green energy economy? The EU Energy Union’s transition to a low-carbon zero subsidy electricity system – Lessons from the UK’s Electricity Market Reform”. *Applied Energy*, 179. P. 1321–1330

⁶⁹ International Renewable Energy Agency - IRENA. (2017). *Op. cit.*

⁷⁰ *Ibid.*; Frankfurt School-UNEP Centre/BNEF (2017). *Global Trends in Renewable Energy Investment 2017*. Frankfurt School of Finance & Management: Frankfurt am Main. p.39

⁷¹ International Renewable Energy Agency - IRENA. (2017). *Op. cit.*

⁷² Morris, C, Jungjohann, A. (2016). *Op. cit.* P.371-373

⁷³ International Renewable Energy Agency - IRENA. (2017). *Op. cit.* P.59

⁷⁴ Toke, D. (2015). *Op. cit.*

there is no evidence “that the auction or tender systems have an inherent ability to reduce costs below what is dictated by technological trends”.

The effectiveness of competitive bidding in helping fuel investment in new capacity is also put into question. Some authors find that tenders only help to control volumes, and do not help to raise the level of investments⁷⁵, while others⁷⁶ observe a “positive and statistically significant effect on the capacity of RE deployment in Europe and US” due to FITs, tender and tax schemes. We were unfortunately not able to find any further studies analysing the correlation between tenders and the capacity deployed.

This section has shown that the debate on (cost)effectiveness of competitive bidding is still polarised. A fitting summary is provided by researchers from the consultancy Ecofys Germany⁷⁷, who show that the cost-efficiency of tenders depends on the auction design, which needs to be adapted to each technology and context. Similarly, the EU-funded Auctions for Renewable Energy Support (AURES) project⁷⁸ showed that auctions are no panacea or “golden bullet that is superior to any other support allocation mechanism at any time”. This is one of the assumptions we will try to test in this work.

⁷⁵ Toke, D. (2015). *Op. cit.*; Gephart, M., Klessmann, C., Wigand, F. (2017). *Op. cit.*

⁷⁶ Kilinc-Ata, N. (2016). *Op. cit.*

⁷⁷ Gephart, M., Klessmann, C., Wigand, F. (2017). *Op. cit.*

⁷⁸ Mora, D. *et al.* (2017) Auctions for renewable energy support - Taming the beast of competitive bidding: Final report of the AURES Project [Report D9.2].

4. Inventory of policy objectives and textual coherence

Following the methodology described in Section 2.4., this section identifies the key policy objectives in the area of climate change and energy as well as the key objectives of state aid rules applicable to renewable electricity. The analysis of the policy objectives in the areas of climate and energy and state aid for RES-E will help us confirm the scope of our research, set the scene for the analysis and also briefly consider the coherence between policy inputs, goals and policy processes (“policy integration”).

4.1. EU climate and energy policy objectives and targets

The current EU climate and energy policy framework is based on the “2020 package”, a set of binding legislation to ensure the EU meets a series of targets for the year 2020⁷⁹. In addition, a new package setting the rules towards 2030 was adopted in December 2018⁸⁰. In this section we are briefly going to explain the specific origin and content of those targets.

The impulse for the current policy framework (“2020 Package”) came from the European Council in March 2007⁸¹, when the Heads of State or Government of the EU Member States underlined “the vital importance of achieving the strategic objective of limiting the global average temperature increase to not more than 2°C above pre-industrial levels”. At that meeting⁸², the Council called for an “integrated climate and energy policy”, acknowledging that “energy production and use are the main sources for greenhouse gas emissions”. Specifically, the Council set three main goals for the Energy Policy for Europe: increasing security of supply; ensuring the competitiveness of European economies and the availability of affordable energy, and promoting environmental sustainability and combating climate change. The EU institution also set specific “headline” targets to reach those goals, that is: “a firm independent commitment to achieve at least a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990”; “a binding target of a 20 % share of renewable energies in overall EU energy consumption by 2020” and “the objective of saving 20 % of the EU's energy consumption compared to projections for 2020”.

In addition, the March 2007 conclusions called for “an early review of the Community guidelines on State aid [...] with the aim of making them more supportive of the Community's energy and climate change objectives”. This was done as early as April 2008, when the European Commission published

⁷⁹ European Commission. “2020 climate & energy package” [webpage]. Available at: https://ec.europa.eu/clima/policies/strategies/2020_en [last accessed on 26/12/2018]

⁸⁰ For further information on the “Clean Energy Package” finalised in December 2018, see: European Commission. Energy. (s.d.). *Clean energy for all Europeans*. Available at: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans> [Last accessed 05/01/2019]

⁸¹ According to EU legislation, the European Council has no legislative functions, but is in charge of defining the general political directions and priorities of the Union (Art. 15 TEU).

⁸² Council of the European Union. Presidency. (2007). *Brussels European Council 8/9 March 2007 Presidency Conclusions*. Brussels, 2 May 2007. Available at : https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/93135.pdf [last accessed on 26/12/2018]

its reviewed state aid guidelines for environmental protection⁸³, which are now replaced by the 2014 EEAG that we analyse in this thesis. As stated by the Commission in its 2008 Communication “20 20 by 2020: Europe's climate change opportunity”⁸⁴, from January 2008, those previous guidelines “recognise in particular that state aid may be justified where higher production costs result in obstacles to market entry for renewable energies. They allow full support for renewable energies to be commercially viable”.

Contrary to the EEAG, The 2008 guidelines did not prescribe any specific instrument, and recognised that “the target has been set for renewable energy to account for 20 % of overall EU energy consumption by 2020. State aid may be justified if the cost of production of renewable energy is higher than the cost of production based on less environmentally friendly sources and if there is no mandatory Community standard concerning the share of energy from renewable sources for individual undertakings”.

Subsequently to the Council conclusions of March 2007, the EU adopted a series of Directives to implement the demands of the heads of state and government, among which: Directive 2009/28/EC (“the Renewable Energy Directive”), Decision 406/2009/EC (“Effort Sharing Decision”), Directive 2009/29/EC on the ETS and Directive 2012/27/EU (Energy Efficiency Directive). All those texts were developed to meet the 2020 “headline targets” set by the Council, and do thus not introduce new general policy objectives. We will therefore not analyse them in detail.

In March 2014, the European Council agreed⁸⁵ on a new policy framework for after 2020 to be adopted. This framework would need to be in line with the EU objective for 2050 –that is, reducing emissions to 80-95% below 1990 levels by 2050 as established in 2011⁸⁶. In addition, in those conclusions, the European Council insisted on “a coherent European energy and climate policy”, which “must ensure affordable energy prices, industrial competitiveness, security of supply and achievement of our climate and environmental objectives”, duplicating the March 2007 conclusions. Those conclusions are however less explicit towards state aid guidelines, and stress the need to move towards more “cost-effective” and “market-based support systems”. In addition, they call for “sustained efforts to moderate the energy costs borne by energy end-users, in particular through a progressive evolution of support mechanisms for renewables to a more cost-effective and market-based system and more convergence of national support schemes beyond 2020”.

The March 2014 Conclusions therefore mark a turning-point with regards to the role played by state aid and government funding for RES-E. On the one hand, they underline the increasing cost-competitiveness of RES-E and, on the other hand, they echo the growing concerns raised with regards to the ever bigger burden that support mechanisms in certain countries put on households’ energy

⁸³ European Commission. (2014). *Communication from the Commission — Guidelines on State aid for environmental protection and energy 2014-2020*. Official Journal of the European Union C200/1, 28.06.2014.

⁸⁴ European Commission. (2008). *20 20 by 2020: Europe's climate change opportunity* [Communication COM/2008/0030 final]. Brussels, 21 January 2008.

⁸⁵ European Council. General Secretariat of the Council. (2014). *European Council 20/21 March 2014 Conclusions*. The author: Brussels, 21 March 2014. Available at: <http://www.consilium.europa.eu/media/29198/141749.pdf> [last accessed on 26/12/2018]

⁸⁶ European Commission. (2011). *Energy Roadmap 2050* [Communication COM/2011/0885 final]. Brussels, 15 December 2011.

bills. In March 2014, the EEAG were already in preparation, and they were published in the EU Official Journal in June 2014 and became applicable in July 2014.

In its October 2014 Conclusions⁸⁷, the European Council endorsed a binding EU target of at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990, an EU target of at least 27% for the share of renewable energy consumed in the EU in 2030 and an indicative target at the EU level of at least 27% for improving energy efficiency in 2030, continuing the previous headline targets. Those conclusions mention that “state aid rules” need to be respected when Member States set and support their own more ambitious targets, now referring to the “new” guidelines (EEAG) from June 2014.

In February 2015, the European Commission launched the Energy Union strategy, based on five “mutually-reinforcing and closely interrelated dimensions designed to bring greater energy security, sustainability and competitiveness”: energy security, solidarity and trust; a fully integrated European energy market; energy efficiency contributing to moderation of demand; decarbonising the economy, and research, Innovation and competitiveness. The Energy Union communication⁸⁸ somewhat dissociates climate policy, which is implemented through the ETS, and the promotion of renewable energy. In this regard, the Energy Union Communication reminds that “in line with the Environmental and Energy Aid Guidelines, renewable production needs to be supported through market-based schemes that address market failures, ensure cost-effectiveness and avoid overcompensation or distortion”. At the end of 2016, the European Commission finally presented the “Clean Energy Package”, a set of measures aimed at implementing the Council October 2014 Conclusions. This package, including the specific targets to be set, is still under discussion but should be adopted at the end of 2018⁸⁹. As all those text are however not yet operational, they will not be considered in the analysis.

Some observations can be drawn from this brief overview of the different climate and energy objectives and targets (*Table 1*). First of all, there is no explicit mention of an “energy transition” in EU texts. Renewable energy and energy efficiency are indeed encouraged, but only as specific targets under much broader objectives, which try to unite economic, environmental and social objectives (avoiding climate change, but also increasing security of supply, ensuring competitiveness and ensuring the availability of affordable energy).

In addition, we see a shift in discourse over the role of state aid: before 2014, state aid is seen as an enabler but, starting from that year, the focus is instead put on the control of costs, cost-effectiveness and avoiding “over-compensation” for renewables. State aid is no longer seen as something that is needed to even out the cost difference between renewables and fossil-based energy sources, but as

⁸⁷ European Council. Secretariat General of the Council. (2014b). *European Council (23 and 24 October 2014) – Conclusions*. The author: Brussels, 24 October 2014. Available at:

<http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/en/pdf> [Last accessed 27/12/2018]

⁸⁸ European Commission. (2015). *A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy* [Communication COM(2015)80]. Brussels, 25 February 2015.

⁸⁹ The different texts presented under that package and the state of advancement of the negotiations can be found on the website of the European Commission: *Clean Energy for All Europeans*. Available at: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans> [consulted 5 November 2018]

something needed to address “market failures”. Unsurprisingly, this reasoning is also the one underlying the EEAG.

Table 1 - EU Climate and Energy Objectives and Targets

Overall objective	Targets	References
<i>Limiting the global average temperature increase to not more than 2°C above pre-industrial levels</i>	20 % reduction of greenhouse gas emissions by 2020 compared to 1990 20 % share of renewable energies in overall EU energy consumption by 2020	European Council. Presidency. (2007). <i>Brussels European Council 8/9 March 2007 Presidency Conclusions.</i>
<i>Increasing security of supply; Ensuring the competitiveness of European economies and the availability of affordable energy;</i> <i>Promoting environmental sustainability and combating climate change.</i>	Saving 20 % of the EU's energy consumption compared to projections for 2020	
<i>[...] a coherent European energy and climate policy”, which “must ensure affordable energy prices, industrial competitiveness, security of supply and achievement of our climate and environmental objectives”</i>	At least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990 At least 27% is set for the share of renewable energy consumed in the EU in 2030 At least 27% is set for improving energy efficiency in 2030 compared to projections of future energy consumption based on the current criteria	European Council. General Secretariat of the Council. (2014). <i>European Council 20/21 March 2014 Conclusions.</i> European Council. Secretariat General of the Council. (2014b). <i>European Council (23 and 24 October 2014) – Conclusions.</i>

4.2. EU state aid for renewable energy

EU rules on “state aid” fall under EU competition law, whose main aim is to prevent the distortion of competition in the internal market. The EU rules on “aids granted by States” is based on Section 2, Title VII of the Treaty on the Functioning of the EU (TFEU). Article TFEU 107.1 restricts any “aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods”. “Aid” includes both “direct aid” in the form of grants, etc. but also “indirect aid”, understood as “any case where the state does not receive income it otherwise would”⁹⁰. The second and third paragraphs of

⁹⁰ Jans, J. H., Vedder, H. B. (2012). *European Environmental Law: After Lisbon*. Europa Law Publishing: Groningen (4th Ed.). p. 319

Art. 107 TFEU define aid that “shall” (107.2) and “may” (107.3) be considered compatible with the internal market. Aid for “environmental protection” or renewable energy does not appear in the list.

In order to limit its discretion in interpreting the treaties and provide more legal certainty, the Commission issues “guidelines” and “block exemptions”, which are binding upon the Commission⁹¹. The first guidelines on environmental aid date from 1974 and were applied until 1993, when they were replaced by new rules. Since then, there have been three more revisions (2001, 2008 and 2014), up to the guidelines (EEAG) that we study in this thesis.

Environmental aid may be considered compatible with the internal market either under Art. 107.3 b) “aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State”; or c) “aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest”. The EEAG are based on Art.107.3c (“aid to facilitate the development of certain economic activities within the European Union”)⁹².

In its introductory part, the 2014 EEAG explicitly refer to the 2020 strategy and its headline targets, stating that these are “particularly important”, and therefore introducing some coherence at the discursive level with the EU climate and energy objectives. The aid to energy from renewable sources is defined in point 3.3. of the EEAG. This part starts by referring to the 2020 targets, stating that “several Union legislative acts already support the achievement of those targets”, namely the Union ETS, Directive 2009/28/EC (‘the Renewable Energy Directive’ or ‘RED’) and the Directive 2009/30/EC (‘the Fuel Quality Directive’). They further add that the implementation of these union acts “may not always result in the most efficient market outcome”, which makes state aid still necessary in certain conditions.

As we have already seen in the previous section, the two main assumptions underlying the EEAG rules on RES-E concern the decrease in the cost of RES-E and the need to limit cost-increases for consumers. This is made clear in the second and third point under point 3.3.1 of the EEAG (“General conditions for investment and operating aid to energy from renewable sources”). Point 108 of the EEAG states that “it is expected that in the period between 2020 and 2030 established renewable energy sources will become grid-competitive, implying that subsidies and exemptions from balancing responsibilities should be phased out in a degressive way” and point 109 maintains that “market instruments, such as auctioning or competitive bidding process open to all generators producing electricity from renewable energy sources competing on equal footing at EEA level, should normally ensure that subsidies are reduced to a minimum in view of their complete phasing out”.

Compared to the 2008 ones, the 2014 EEAG are much more detailed in describing which specific form the aid to electricity from renewable sources has to take. They thus require that, from 1 January 2017, “aid is granted in a competitive bidding process”, that is, through auctions or tenders. In addition, the EEAG set a series of other conditions that the aid must respect: aid must not incentivise electricity produced at negative prices, is granted as a premium in addition to the market price and the bidding processes are open to all generators producing electricity from renewable energy sources on a non-

⁹¹ *Ibid.* p. 328

⁹² It may be worth noting that the 2008 guidelines did not refer to either point.

discriminatory basis, meaning that it is not limited to a specific technology. Finally, the EEAG also set an obligation for the beneficiaries of the aid by requiring that they participate in the balancing⁹³ of the market. We have listed these objectives in *Table 2*.

Table 2 - EEAG objectives and conditions regarding aid granted to electricity from renewable sources

Overall objective	Conditions	Reference
<i>Aid is granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria</i>	Technology-neutral Specific exceptions for installations of a certain size Beneficiaries sell their electricity directly in the market and are subject to market obligations	EEAG

The conditions set by the EEAG are nuanced by a series of exceptions. First of all, aid for smaller installations (1MW and 6MW for wind) or demonstration projects may be granted without a competitive bidding process. In addition, very small projects (less than 500 kW or 3MW for wind) are exempt of all conditions (aid granted as a premium, balancing obligations and avoiding negative prices). Second, countries may actually limit the bidding process to a specific technology if a technology neutral tender would lead to a “suboptimal result which cannot be addressed in the process design”. We will come back to the specific implications of these exceptions in Section 5.

4.3. Policy integration and textual coherence

As we have seen Section 3 (Context and Literature Review), the main interaction between the EEAG rules on support for RES-E and the EU climate and energy objectives concerns –unsurprisingly– their effect on the development of renewable capacity. This was the initial assumption of this work and the basis for the interviews carried out under step 2. However, as we have seen through the analysis of EU climate and energy objectives, the development of renewables is only one the targets, and not the main objective (which are: increasing security of supply; ensuring the competitiveness of European economies and the availability of affordable energy; and promoting environmental sustainability and combating climate change).

This analysis of the policy objectives has shown us that another main area of interaction and policy coherence is the effect of the EEAG rules on support for RES-E on the final price of energy paid by consumers (affordability), which is not always directly associated with EU energy and climate policy. In addition, we have seen that, although the EEAG refer to the 2020 targets, the assumption made by the European Commission is that state aid will soon no longer be needed to support RES-E. It is therefore understandable that the EEAG rules on RES-E do not focus on the development of renewable energy, but on reducing subsidies (and thus costs), which should happen once RES is fully integrated in markets. While, for the sake of simplicity, the objective of ensuring affordability was not taken into account in

⁹³ As electricity cannot be stored (at least under current technological developments), the production and consumption of electricity need to be continuously balanced.

the formulation of the interview question, it is an essential point we will come back to in the conclusion.

5. Analysis

As explained in Section 2.4 (“Methodology”), six interviews were carried out with experts in renewable energy and competition law to get a clear view of the actors’ perceptions of two elements: first, the impact of the EEAG provisions on support to RES-E on the development of renewables in a larger context (“strength of the interaction” in Section 5.1.) and, second, the overall coherence between the measures and rules put in place by the EEAG and the EU climate and energy targets (development of renewables and reduction of CO₂ emissions), to be found in Section 5.2.

5.1. The EEAG as part of a poor investment climate

In this section, we will try to determine the relevance of studying the EEAG and the competitive bidding prescribed by them with regards to the attainment of the EU energy and climate objectives as defined in Section 4.1. Specifically, we will try to see in how far the EEAG and the competitive bidding requirements influence the development of renewables in the EU.

The main question asked to the experts concerned the coherence between the rules and measures established by the EEAG and the EU objective of reducing emissions and promoting renewable energy. Nevertheless, questions referring to the strength of the interaction between the EEAG and other issues having an impact on EU climate and energy objectives (“are the guidelines just one factor among others influencing investment/deployment?”) were also asked for in most interviews (002: “maybe there was also other things...”; 003: “Would things have been equal if they hadn’t been there?”; 006: “the way investors recover their money through markets, is that fine for you?”). In other cases (001, 003), experts spontaneously brought up other topics that also have an impact on the investment in RES-E, so the question did not need to be asked.

The first general assessment shared by most interviewees was that the general investment climate for RES-E is currently not good, and not (only) because of the EEAG. Expert 001 (lines 32-37) lists three main reasons for the bad investment climate: “retroactive changes” that happened to renewable support programmes in several countries, the “transition towards this new support mechanism” and regulatory uncertainty regarding capacity plans after 2020. Expert 006 (lines 67-71) explained that today it is still not easy for renewable energy investors to recover their money, which, logically, limits investments. This is due to “very low” wholesale prices and “0 marginal prices for some kind of technologies”. Expert 006 mentioned “political interference” as a reason hindering the good functioning of markets, which do not send the right “price signals” to renewable energy investors.

Those views on the investment climate are shared by EU and international organisations and are confirmed by global data on investments and capacity additions. As we see in *Figure 3*, net additions to installed capacity declined sharply after 2011 in the EU and since then only increased slightly in 2015. In its evaluation of the renewable energy directive (Directive 2009/28/EC)⁹⁴, the European Commission explains that the decline in investments was due to four main factors: “abrupt policy

⁹⁴ European Commission. (2016c). *Op. cit.* p. 37-38.

changes and reduction in RES support”, “the economic and financial crisis”, “the decreasing renewable energy technology costs” and “oversupply of ETS allowances and limited pricing of other externalities such as air pollution”. Policy changes in support schemes and “a sharp reduction in technology costs” are also listed by REN21⁹⁵ as reasons for the global decline in investments in recent years. Finally, the European Commission points to problems in planning, licensing and permitting procedures as a barrier to investments⁹⁶.

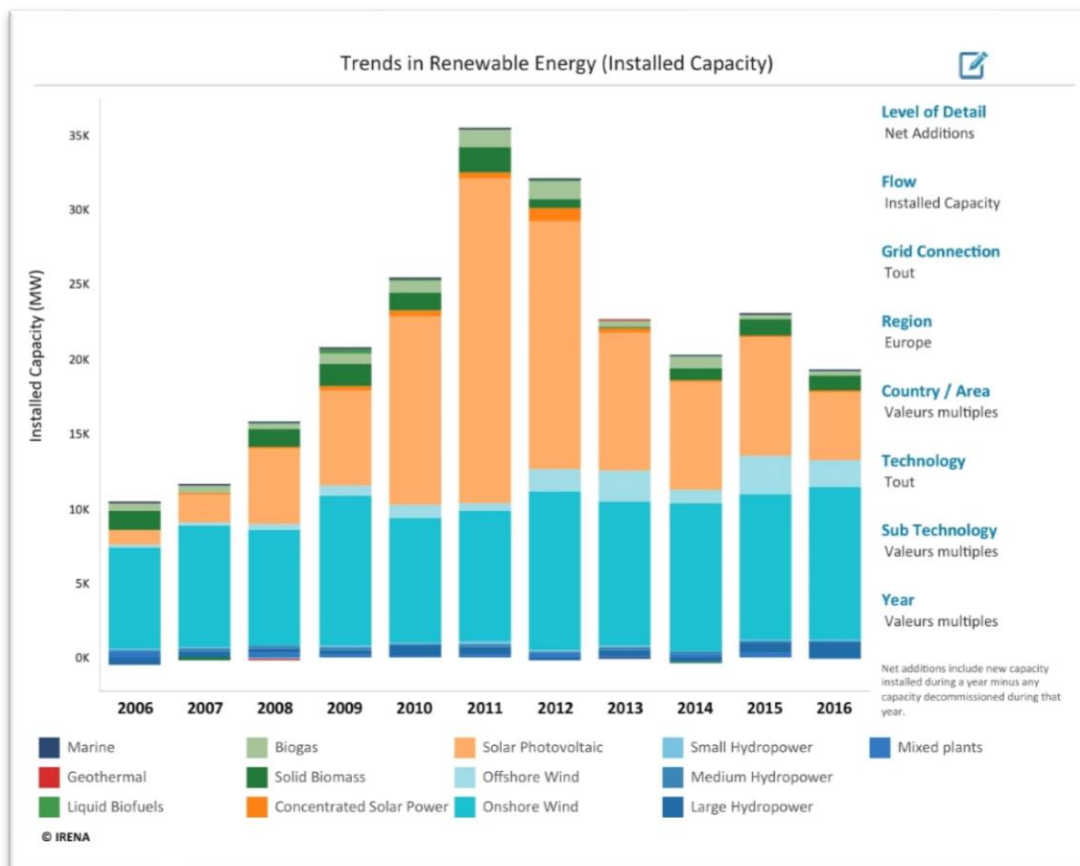


Figure 3 - Net additions to installed capacity. Data source: IRENA Statistics Time Series (<http://resourceirena.irena.org/gateway/dashboard/index.html>)

In order to determine the effect of the EEAG on the overall investment climate, and therefore the relevance of studying them in relation to the EU climate and energy targets, we are going to shortly analyse each of those different reasons put forward by our experts and by international institutions. A summary table (*Table 3*) is provided at the end of this section.

If we look at investments from a monetary point of view, **decreasing costs of renewable energy technologies** do intrinsically have an impact on investments. The fall in technology costs is very clearly shown in the decoupling between investment and capacity installed, with investments declining while

⁹⁵ Renewable Energy Policy Network for the 21st Century. (2015). *The First Decade: 2004-2014*. REN21: Paris p.15

⁹⁶ European Commission. (2016c). *Op. cit.*

capacity installations grew, as it was the case in 2016⁹⁷. This decoupling is however not (yet) verifiable at the EU level, where both investment levels and capacity additions remained stable. Indeed, it could be argued that lower costs should trigger more investments, that is, more new capacity installed. While there is certainly an impact of the cost of renewables on the level of investment measured in monetary terms, the exact “direction” of the impact of decreasing RES-E costs on the deployment of renewable energy capacity is difficult to measure. In any case, if there was any impact on the investment climate, it would be positive. We will therefore not deem this factor as relevant.

Abrupt policy changes and reduction in RES support. There seems to be agreement within European and international institutions⁹⁸ that policy changes in support schemes, namely (retroactive) changes to feed-in tariff regimes, harmed investments in certain member states. While those changes were more abrupt in some countries (Spain) than in others (Germany), they all concerned administratively-set support schemes, that is, feed-in tariffs and premiums granted to all producers. As we have seen in Section 4.2., under the new EEAG, it is no longer possible to grant FiT and premiums without competitive bidding. We will therefore consider that this factor is no longer relevant when analysing the investment climate today.

On the contrary, we can say that the EEAG should have had a positive effect on investments by putting a halt to those retroactive changes. Indeed, the change towards tender systems was presented by the European Commission as a double solution to soaring financing costs and the retroactive changes in policy support mechanisms that they brought with them: according to that institution, tenders help to contain costs, and thus reduce the burden put on households' energy bills; in addition, they provide more “investor certainty since support mechanisms are more transparent and predictable and less exposed to unilateral government decisions (e.g. modification of support conditions for existing installations)”⁹⁹.

However, contrary to the Commission's assumption, the answers provided by the experts interviewed in this thesis reveal that tender schemes are not (yet) providing the stable investment climate needed to reassure investors. While they may have reduced the risk of complete policy reversals, tenders still result in stop-and-go situations and lack of visibility, which has an impact on the willingness to invest. Expert 001 observes:

“[...] from the investor's perspective it is right now a bit difficult to plan your activities in the supply chain because you don't know [the resources in place?, so actually] in which markets you will have the opportunity to compete.”

⁹⁷ International Renewable Energy Agency (IRENA), Climate Policy Initiative (CPI). (2018). *Global Landscape of Renewable Energy Finance, 2018*. International Renewable Energy Agency: Abu Dhabi.

⁹⁸ Renewable Energy Policy Network for the 21st Century. (2015). *Op. cit.* p.15; European Commission. (2016c). *Op. cit.*

⁹⁹ European Commission. (2016c). *Op. cit.* p. 4-5.

Expert 002 puts it like this:

"[...] what you see after that is that nobody is investing because they have no idea what they can expect. So, they have no visibility, that's bad for investment. Then, after the decision comes out, you have a race to get into the... to receive the benefit before it ends. So then you have this whole rush of investment and then just completely it falls off a cliff"

Expert 006 confirms that investors look for stability, and that the current framework is not exactly providing that, partly because of the uncertainty related to the possible revision of the EEAG.

The effect of the **transition to the new auction systems** on investments is also confirmed by the annual report on *Global Trends in Renewable Energy Investment 2018* by Frankfurt School-UNEP Centre¹⁰⁰, which cites "an end to subsidies for onshore wind and utility-scale solar, and a big gap between auctions for offshore wind projects" for the decline in UK investments and "uncertainty over a shift to auctions for onshore wind" as one of the reasons for a 35% drop investment in Germany.

Thus, expert experience and data show that, while auctions were presented as a solution to the design issues encountered with administratively-set schemes, they also create issues of their own, which impact investments. We will analyse this in detail in the next Section (5.2).

The economic and financial crisis had, at least, a double impact: it reduced both the general investor confidence in the market and energy demand. As we can see from Eurostat data (*Figure 4*, next page), while gross final consumption did indeed decrease heavily in 2009, it already increased again in 2010, and then fell until 2014. Since that year, final consumption is rising again, showing that the crisis may have come to an end, but also putting a question mark on the effectiveness of EU energy efficiency policies¹⁰¹. We therefore consider that at present this factor has no longer an impact on investment decisions.

A **malfunctioning ETS** and an insufficient pricing of negative externalities is also named as a factor impacting investments in renewable energy (see for example, Expert 006, lines 55-60). Indeed, a well-functioning ETS should have an impact on RES deployment, as it would put an additional price on polluting electricity, and thus make RES more competitive. However, today the EU ETS price is still very low, and has thus a limited impact on RES promotion when compared to support schemes¹⁰². Despite a slowly rising ETS price, certain analysts indicate a floor price for ETS or regular adjustments could be a solution¹⁰³. We therefore deem that this is still a relevant factor influencing RES-E investments.

¹⁰⁰ Frankfurt School-UNEP Centre/BNEF. (2018). *Op. Cit.*

¹⁰¹ Agora Energiewende, Sandbag. (2018). *The European Power Sector in 2017. State of Affairs and Review of Current Developments*. Agora Energiewende, Sandbag: Berlin/London, January 2018

¹⁰² Duscha, V., del Río, P. (2017). *Op. Cit.*

¹⁰³ Fagiani, R., Richstein, J. C., Hakvoort, R., De Vries, L. (2014). "The dynamic impact of carbon reduction and renewable support policies on the electricity sector". *Utilities Policy*, 28. P. 28-41; Amaral, K. "Floor prices are necessary to support weak EU carbon market" [webpage]. Carbon Market Watch, 6 February 2018. Available at : <https://carbonmarketwatch.org/2018/02/06/floor-prices-necessary-support-weak-carbon-market/> [last consulted 27/12/2018]

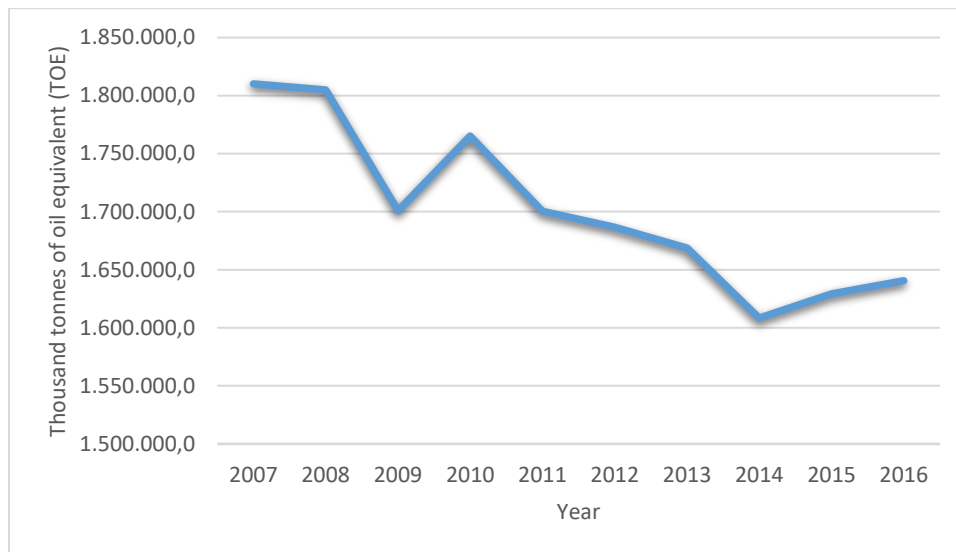


Figure 4 – Final energy consumption in the EU. Data source: Eurostat

Political interference in markets is seen as a reason for inefficient decisions taken by market actors by Expert 006. Given that the energy market is strongly regulated, political interference can be of various types: “political decisions to phase out certain type of technologies”, decisions to keep capacity on-line (capacity mechanisms) but also taxes and levies, which prevent price-signals from wholesale markets being passed on to final consumers¹⁰⁴. However, as this political interference concerns not only investors but also consumers and very different types of technology and policy levels, it is difficult to actually measure exactly its impact on the investment in renewable electricity generation. We therefore consider that this factor is still relevant but difficult to measure.

Related to policy is “**regulatory uncertainty**”, that is, lack of knowledge about future political and regulatory frameworks, which is also a big issue for investors. This is confirmed by Expert 001, who mentions a “slow-down in installation is because we don’t know what is the outlook, what would be the capacity plans after 2020” (lines 46-47). The role of targets in the spectacular growth in renewables until the last years in the EU is generally recognised, but not by all actors think that they should be the main instrument to promote investments, as shown by our interview with Expert 006 (lines 75-77), who points to ETS as a better instrument. We do however consider that this issue is still relevant too.

Finally, “**very low wholesale prices**” (as mentioned by Expert 006) is also a factor that influences the financing of renewables. This is confirmed by the European wind industry association, which notes that “short-term wholesale electricity prices are too low and volatile to provide and predict adequate returns from the spot market revenues only”¹⁰⁵. In this case, it can be said that renewables have been the victims of their own success. In fact, the drop in wholesale prices is (at least partly) due to renewables themselves, through what is commonly called the “merit order effect”. Today, electricity producers sell their electricity on wholesale markets, which rank sources according to the “last generation unit in the economic merit order” (the “marginal unit”) of energy production¹⁰⁶. Thus,

¹⁰⁴ European Commission. (2016c). *Op. cit.* p.43-45.

¹⁰⁵ WindEurope. (2017). *Op. cit.*

¹⁰⁶ An explanation of the “merit order effect” can be found on the “Clean Energy Wire” website: Kerstine Appunn, K. (2015). “Setting the power price: the merit order effect” [article]. Clean Energy Wire, 23 Jan 2015. Available

investors today do recover their investment through a system based on marginal pricing. As renewables have extremely low running costs (marginal prices), they have replaced more expensive peaking units (often gas), thus making wholesale electricity prices drop.

In relation to this is also the higher risk premiums paid by renewable energy, which makes renewable energy financing more expensive than “conventional” generation units. This was an issue studied by the EU-funded Diacore project¹⁰⁷. As explained in the final report of that project¹⁰⁸, the large upfront operational expenses of renewables increase the overall investment risks, and require “a higher rate of return on their investments, leading to increased cost of capital for RES investments.”

These market issues do in fact explain why support policies are still needed, despite the competitiveness of renewable electricity. As we saw in Section 4.2., this is confirmed by the EEAG themselves, which repeatedly refer to “market failures” such as negative externalities as a reason to explain why state support is still needed¹⁰⁹. In addition, IRENA¹¹⁰ shows that while private sources provide the bulk of renewable energy investment globally (over 90% in 2016), “public finance can play a key enabling role – covering early-stage project risk and getting new markets to maturity”. According that institution, in 2015, about 50% of the total electricity produced from renewables was supported by renewable energy support schemes¹¹¹. This confirms that the EEAG and the funding mechanisms they prescribe still have an important impact on the development of RES-E, and will be a relevant study topic also in the coming years.

To conclude, we see that the tender mechanisms and conditions imposed by the EEAG are only one part of a bigger “puzzle” influencing the investment climate for renewable energy. On the positive side, decreasing renewable energy cost (triggered or not by tenders) should promote investment in renewable energy sources. On the more negative side, investment decisions appear to be influenced by a low ETS price and a limited pricing of negative environmental externalities, regulatory uncertainty and perceived “political interference” in markets as well as the difficulty to recover investment costs through markets. Finally, the transition itself to new funding mechanism has also impacted investment decisions, as we will see in the next section.

at: <https://www.cleanenergywire.org/factsheets/setting-power-price-merit-order-effect> [last consulted 14 July 2018]

¹⁰⁷ <http://diacore.eu/objectives>

¹⁰⁸ Noothout, P. *et al.* (2106). *The impact of risks in renewable energy investments and the role of smart policies: Final report*. [Project report under the EU-funded DiaCore Project].

¹⁰⁹ European Commission. (2014). *Op. cit.* Point 3.2.2. “Need for State intervention”.

¹¹⁰ International Renewable Energy Agency (IRENA), Climate Policy Initiative (CPI). (2018).

¹¹¹ *Ibid.* p. 28

Table 3 – Issues impacting investment in RES-E

Issue	References	Relevance
Decreasing renewable energy technology costs	Expert 003; European Commission. (2016c); Renewable Energy Policy Network for the 21 st Century. (2015).	Irrelevant (no effect on investor confidence)
Economic and financial crisis	European Commission. (2016c)	No longer relevant
ETS and limited pricing of negative externalities	Expert 006; European Commission. (2016c).	Relevant
Political interference in markets	Expert 006; European Commission. (2016c).	Relevant, but difficult to assess
Regulatory uncertainty (policy)	Expert 001	Relevant
Retroactive changes to renewable support programmes	Expert 001; European Commission. (2016c); Renewable Energy Policy Network for the 21 st Century. (2015).	No longer relevant for feed-in tariffs
Transition towards new support mechanisms	Expert 001; Frankfurt School-UNEP Centre/BNEF. (2018).	Relevant
Very low wholesale prices	Expert 006	Relevant

5.2. Coherence between the EEAG and EU climate and energy objectives

After analysing the general relevance of the tender mechanisms in the EEAG in the development of RES-E, we will now analyse more in detail whether their outputs and implementation are coherent with the general objectives described in Section 4. (As shown in that section, a certain degree of “textual” or “discursive” coherence can be found, but this will no longer be analysed here.) We will first provide a general overview of the results of the interviews, and then provide a more detailed analysis of the interactions raised in the interviews.

A first analysis shows that **the opinions of the experts are quite balanced when it comes to assessing the “direction” of the interaction between the tender mechanisms prescribed by the EEAG and the development of renewables**. Very roughly, 3 interviewees see more synergy and the 3 others see more contradictions (*Table 4*). Interestingly, no expert explicitly calls for a return to support schemes that were administratively set and provided to all suppliers such as FiT, and most seem to agree that tenders have been rather beneficial in reducing the cost of renewables and, thus, the cost borne by the consumer. Furthermore, even if the expert rather sees coherence/contradiction, some factors pointing to the opposite are also brought forward. These generally nuanced opinions can be taken as a proof of the complex dynamics involved in the interaction between the EEAG and the promotion of renewable energy, thus already pointing towards a possibility nuanced final assessment.

Table 4 – Experts’ general views and main positions and arguments

Expert	General Appreciation	Key Synergies and Conflicts
Expert 001	Nuanced opinion - Synergy, with slight contradiction in the short term	-Issues with the planning and design of tenders “[...] <i>the tenders would be a good option to incentivise cost reductions in the deployment of renewables, that’s fine. But it’s just the question of how we do it: in what time-frames, to what extent you consult with the industry, do we discuss the design of the tenders so that it works for investors and for the government at the same time?</i> ” - Technology neutrality is not the right criterion to build the energy market of the future (“ <i>if we want to go towards a fully renewable energy system, then you need to have some sort of coordination between technologies</i> ”, “ <i>it’s the energy system, it’s not just about price</i> ”)
Expert 002	Contradiction “They’re certainly not helping, that’s not their aim”	-The climate objectives are not taken into account (“[...] <i>the whole philosophical and practical approach of DG COMP is not that renewables help meet the Paris objectives, it’s simply to ensure that support schemes comply with the treaties in terms of competition</i> ”)

		<p>-Bad for general investor certainty (“[...] when you actually look into the substance, the state aid guidelines are not sufficiently clear enough”; “I think procedurally it has created a lot of problems, mainly because the state aid guidelines and the way that DG COMP goes through their procedures to get support schemes passed or agreed upon by the Commission is very non transparent.”; “[...] what you see after that is that nobody is investing because they have no idea what they can expect”)</p> <p>-Excludes certain market players (“So competitive bidding is not appropriate for everyday citizens or community project members. They simply aren’t. And... currently the guidelines don’t acknowledge... they acknowledge like small installations but they don’t acknowledge the need for citizens to participate, or even communities, even though this type of entity has existed for a long time”)</p> <p>-Costs have been driven down, which is good for the development of renewables (“I agree with you that probably one of the main drivers was the cost question. So, in that sense I think they have been successful in driving the costs down... if something gets cheaper it's also that more will be built on it, no?”)</p>
Expert 003	Synergy	
Expert 004	<p>Synergy <i>“Generally speaking, whether tenders are a good instrument... [...] I would say they really have their strengths and weaknesses”</i></p>	<p>-Costs have been driven down, which is good for the development of renewables, consumers and hence for public acceptance (“I think they do help to reach renewables targets because in the end the low-cost also helps the society and helps the consumers”; “I think there tenders can play a good role, because they can also create acceptance for paying renewable support, or at least they can limit the support that is being paid...”)</p> <p>-Some actors may be excluded of the market, but the coherence of this depends on what you want to achieve politically (“There’s strong competition and only a few actors are left in the competition, that can also be negative. And you probably heard if you talked to actors like renewables’ cooperatives, they are quite worried that they can’t develop their projects anymore, and also the acceptance of renewables will suffer”)</p>
Expert 005	Contradiction	<p>-DG COMP has exceeded its competences (“We should not have a provision in there that</p>

	<p>“we would not want to change them if we would say that it’s actually allowing the changes that are necessary in the energy market”</p>	<p>renewables support is no longer needed in the future. In particular, I’m sorry, but I think that is not something to come from DG COMP”)</p> <p>- Bad for general investor certainty (“[...] <i>it’s very difficult to predict whether renewable support will be approved and how it will be in the future, whether in the future the Commission will indeed allow this, has created so much investor insecurity that there may be actually reason for argument to say that the guidelines are, instead of promoting more investment in renewables [...] the guidelines seem to be actually making it more hard to reach that goal without... if you need to do it [...] with public support</i>”)</p> <p>-Exclude cooperatives / citizens (“<i>there is an increasing understanding that energy communities are actually a very important actor in the kind of energy transitions we want</i>”; “<i>if they want to participate in bidding procedures, etc, for them the administrative works are very huge, there’s also other costs that are very difficult... and so there seems to be a trend that they less and less participating in them, and so not getting support...</i>”)</p>
<p>Expert 006</p>	<p>Synergy, with some nuances</p> <p>“we are where you could expect with the framework, I suppose”</p>	<p>-The market is the best way to drive investments (“<i>definitely we will be looking at, preferably, at a market-driven investment environment, and, if interventions are needed, market-based mechanisms would be our preference</i>”)</p> <p>-There may however be a need for “other types of instrument” (“<i>There are auctions organised by MS, and our members have won some of those auctions, so it’s definitely a good thing. But I think there is maybe a need for other types of instrument... [...]we look for certainty in the long term, in price-signals, in investment framework, in stability, so that’s the crucial element in that</i>”)</p> <p>- Uncertainty around the revision of the guidelines is conflicting with the needs of investors ([it’s an] “<i>open question we don’t really like very much</i>”)</p>

It is worthwhile noting that **the initial distinction between the current 2020 objectives and any future objectives (Table 1, Section 4.1.) was not deemed relevant by the experts.** Specifically, two experts pointed out that the question of the targets in itself was not relevant, as the capacity installed will

depend on how “generous” the support scheme is (Expert 003, lines 64-65) and not the tender mechanism in itself (Expert 004, lines 11-15):

“I would say, I wouldn’t pay too much... well, I see that in the debate there is a lot of focus on the instruments you use, so if you say -you ask “are tenders the right instrument?” then I would say it also depends on what goals you set. I mean, obviously if you tender high volumes, then it’s feasible to reach high goals. If you don’t, you don’t. So I would see this independent of the targets that you set in terms of renewables deployment.”

Our objective in this thesis is to study the coherence from an “implementation” point of view, and not from a textual or “policy formation” point of view. In some cases, however, experts spontaneously pointed to a clear coherence or contradiction already at the level of policy formation (see *Table 4*). This was the case of Expert 002, according to whom “*the whole philosophical and practical approach of Directorate-General Competition is not that renewables help meet the Paris objectives, it’s simply to ensure that support schemes comply with the treaties in terms of competition*”. This is however contradicted by Expert 003, who explains that the Commission does assess the climate and energy objectives set by MS when assessing aid mechanisms (lines 111-116):

“... there are certain things you need to prove in order to give somebody state aid. The measure needs to be necessary, needs to be proportionate, appropriate, but it also needs to contribute to a common objective. And there, the policy comes in place, because there a common objective of the EU is to decarbonise the economy basically. You have the 2030 goals, the 2050 goals... So, there, when a MS stays “I want to get rid of... I want to move towards a greener generation mix” that is certainly a very good common objective. And so you pass that test.”

In addition, some experts question the competence of the Directorate-General for Competition in setting certain criteria that are more of the remit of energy policy experts. Expert 001 explains that the technology neutrality criterion in the EEAG interferes with energy policy because it does not take into account how the energy system works (lines 16-30). Expert 005 (lines 145-151) more bluntly accuses the Directorate-General for Competition of going beyond its competences (“We should not have a provision in there that renewables support is no longer needed in the future. In particular, I’m sorry, but I think that is not something to come from DG COMP”).

At the implementation level, a very global analysis of the interviews shows that the “issues” influencing coherence/contradiction mentioned by the experts revolve around 4 main themes: the cost reductions linked to tenders (“cost”); issues linked to the approval process of the funding scheme, the design and frequency of the tenders and the review of the EEAG (“procedural issues”); the issue of technology neutrality and the impact the EEAG have had on certain types of investors (“actors”). *Table 5* analyses the main topics touched upon by each expert.

Table 5 – Thematic analysis of interviews

	Cost	Technology neutrality	Procedural Design issues	/ Actors
001	X	X	X	
002			X	X
003	X	X		
004	X			X
005		X	X	X
006	X		X	

While we tried to not influence the expert's answers in bringing up issues, some cases occur where the issue is introduced by the interviewer ("technology neutrality" in interview 003). The arguments provided by Expert 006 were more difficult to align with those "issues". The main argument of Expert 006 is that renewables need to be integrated into the market, without however pointing to specific issues with regards to the EEAG as such. The answers provided imply that there are problems (there is a need to look into other ways to promote investment, for the market to send the right signals, for certainty and stability) but do not make these problems explicit.

Table 5 provides a colour code for the "direction" of the interaction: green when there is a synergy and red when there is a contradiction. Grey is used for nuanced positions. As can be seen, the main reason given by experts for a synergy are the cost reductions achieved by the EEAG in financing renewables. Among the main reasons for contradiction, we find the "exclusion" of some actors (investors) from the system and the lack of transparency and predictability created by the way the support schemes are approved and the procedural issues linked to the implementation of the tender system by the countries. In addition, the uncertainty around the possible upcoming revision of the EEAG is also an issue of concern to several interviewees. Finally, on the issue of the "technology-neutrality" requirement, opinions are less strong/more nuanced. Each of these points and the interactions identified will be analysed in detail below.

"Lower costs" – a Strong Argument for Coherence that is Difficult to Assess

Generally, the main element for arguing in favour of coherence of the EEAG towards reaching the EU climate and energy targets is the "cost" factor. This is also confirmed by the interviews: three experts acknowledge, at least to some extent, that competitive bidding is helping to drive costs down. Expert 001 (lines 99-100) states that "[...] you would see a lot of cost reduction because people will compete on the price, so obviously they are dropping already [...]" but also warns that "cost cannot be the only criterion" (line 124). Expert 003 (lines 57-62) thinks that the EEAG "have been successful in driving the costs down", which in turn should promote the deployment of more capacity. Expert 004 points to significant cost reductions as the strength of tenders ("I think [tenders] do help to reach renewables targets because in the end the low-cost also helps the society and helps the consumers"), but also agrees that these reductions have not only been because of the tenders (lines 16-22). Finally, Expert 006 sees that "prices have decreased" but warns that the talk about "0 euro auctions" (that is, unsubsidised projects) may sometimes be "misleading" (lines 10-14).

Price decreases in tenders and competitive bidding processes are observed in reports by international and European organisations¹¹². Nevertheless, as already seen in the previous sections, price reductions are not only due to the competition created by auction mechanisms but also to other market factors. According to IRENA¹¹³ “falling equipment costs, improved technology and optimised supply chains” also contribute to the “virtuous cycle” driving cost reductions. It is indeed difficult to assess in how much exactly tenders have had a different impact than other factors in the “absolute” cost decrease of renewable energy technologies. As can be seen in *Figure 5*, renewable electricity costs, especially for solar, have been falling since 2010, that is, before tender systems were introduced in most countries. It can also be observed that the LCOE of onshore wind was already very low, due to an early drop in prices which intervened in the 1990’s¹¹⁴.

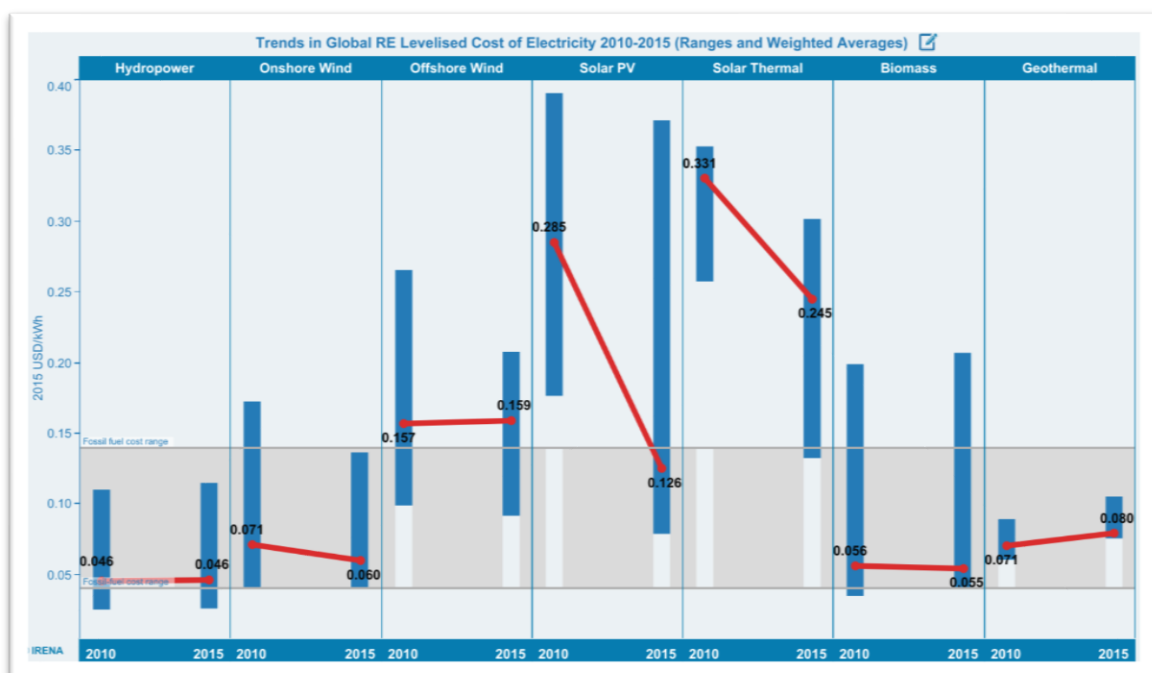


Figure 5 – Trends in RE LCOE 2010-2015. Source: IRENA

As shown in the literature review, there is a debate over whether tenders create “more competition” than other schemes. As confirmed by Expert 004, of the biggest strength of tenders is that they help to reveal the “actual price” of renewables and thus take off the burden from the public authorities of “finding out” that price. Nevertheless, the real price level obtained will depend on the initial level of competition (004, lines 63-69):

“generally speaking, in the ideal case, the best that can happen is that competition is kind of high enough that the tender will reveal the true costs of a project, so which would mean it’s basically a cost at which the project developer or investor would still invest and realise

¹¹² Frankfurt School-UNEP Centre/BNEF. (2017). *Op. cit.* ; International Renewable Energy Agency - IRENA. (2017) *Op. cit.*; Council of European Energy Regulators (CEER). (2018). *Tendering procedures for RES in Europe: State of play and first lessons learnt* [CEER public document C17-SD-60-03]. CEER: Brussels, 18 June 2018.

¹¹³ International Renewable Energy Agency - IRENA. (2017). *Op. cit.* p.98

¹¹⁴ Renewable Energy Policy Network for the 21st Century. (2015). *Op. cit.* p. 19

the project, but with the minimum margin to do so. This would then be kind of the efficient outcome. But in practice this is not always the case. So, depending on for example if there's less competition, if bidders know there's only a few participating, then they can realise higher prices, for example"

Put shortly, "it's not just a question of the actual cost but also of what prices can you realise with competition". To summarise, the fact that tenders have somehow helped decrease costs seems undisputed, although it is not clear to what extent this has been because of competitive bidding. In addition, any cost decreases achieved through competition will, inevitably, depend on... the initial level of competition.

Another main argument in favour of cost reductions is that they should lead to more renewables installed. This is confirmed by Expert 003 (lines 57-60):

I agree with you that probably one of the main drivers was the cost question. So, in that sense I think they have been successful in driving the costs down... if something gets cheaper it's also that more will be built on it, no? So you see that in that sense they has been a very good development, also the amount of renewables...

Nevertheless, the effect of lower prices on the capacity deployed is, similarly to cost decreases, not easy to measure. As we have already shown, despite plunging costs in wind and PV, the capacity installed in the EU has not significantly risen in the last years. In part, this may be because the price (or LCOE) of energy is actually not the only factor influencing investments, and other factors such as the policy environment or the market structure also have an influence, as already shown in Section 5.1.¹¹⁵. To put it shortly, "cost" is only one factor among others when planning investments. While more capacity certainly leads to lower costs (development of markets and economies of scale)¹¹⁶, the contrary is less certain, given the multiplicity of factors considered when deciding to invest.

This lead us to the third main argument in favour of competitive procedures, which is a reduced financing burden for Member States. As tenders are based on giving out support for a fixed capacity (MW) or fixed amount of energy production (MWh), they allow public authorities to control exactly how much money is spent. Reduced financing costs for countries (and thus for consumers) are thought to increase public acceptance of renewables. Given that renewable energy funding schemes are mostly funded through energy bills, tenders are said to be "better for consumers", who will need to pay less for their electricity because of the reduced costs in financing renewable energy projects (CEER). As we

¹¹⁵ A comprehensive overview of the different barriers hindering investments can be found in: Hu, J., Harmsen, R., Crijns-Graus, W., Worrell, E. (2018). "Barriers to investment in utility-scale variable renewable electricity (VRE) generation projects". *Renewable Energy*, 121. Pages 730-744. Those authors classifier barriers according to the project development stage: barriers at the preliminary risk scanning stage (path dependence, lack of confidence, knowledge or experience, etc.), barriers in the economic appraisal process (high upfront capital cost and capital intensity, expected insufficient revenues, underestimation of the project lifetime, etc.), barriers at the project development stage (high development costs, lack of social acceptance and finally problems related to the access to capital.

¹¹⁶ Butler, L., Neuhoff, K. (2008). *Op. cit.*; According to IRENA, "the rapid deployment of solar PV, working in combination with high learning rates (for every doubling of cumulative installed capacity PV module costs decline by 20–22%) has led to dramatic cost declines in the last 10 years". IRENA. Power Generation Costs, Solar Power [webpage]. Available at: <http://www.irena.org/costs/Power-Generation-Costs/Solar-Power> [Last accessed 27/12/2018]

have seen, cost reductions for consumers were one of the main arguments to introduce tenders in the first place¹¹⁷. As a side note, it is interesting to note that, in our interviews, public acceptance was not so much linked to cost reductions for consumers than for their direct participation in the market (see section on “actors”).

Cost reductions for consumers relate to the global policy objective of securing the “availability of affordable energy” put forward by the European Council in 2007 (Section 4.1)¹¹⁸. Since tenders are only implemented since 2017, it is still too early to draw any conclusions on their effects on the price paid by consumers. The German energy regulator does however predict that the new tender mechanism and the “significant decline in the remuneration for wind and solar plants” that it has produced will have an effect on prices in 2019¹¹⁹.

To conclude, both the experts interviewed and international reports correlate the tender mechanisms to cost reductions. However, the exact role competitive bidding has had in promoting cost reductions both in production (LCOE) and for consumers (taxes in final energy bills) and is not easy to measure. It is also not yet clear whether lower costs will lead to more capacity installed. In addition, the level of cost reductions achieved through tenders will be strongly influenced by the initial level of competition in the market. Therefore, more studies on the casual relationship between cost reductions and competitive bidding would be needed.

Nevertheless, one clear benefit of competitive bidding relates to the capacity of Members States to control the amount they spend on RES-E support. While it is still to be seen whether this will allow for lower taxes and levies on consumers’ energy bills, it is certain that a reduction in costs for consumers will help increase the acceptance of renewable energy technologies and investments. Thus, we could say that lower costs do speak in favour of the coherence of competitive bidding with EU climate and energy objectives, by (potentially) promoting more investments in RES-E and more affordable energy for consumers. However, this statement would still need to be verified with further research as more data on the implementation of the EEAG becomes available.

¹¹⁷ As shown in Section 2.1, in the last years, household consumers have seen their energy bills go up due to increasing taxes and levies used for financing renewable energy.

¹¹⁸ As noted by Hu, J., Harmsen, R., Crijns-Graus, W., Worrell, E. (2018). *Op. cit.*, “too high or substantial increase of support costs” can negatively impact public acceptance, which in turn can be a barrier to investment.

¹¹⁹ Bundesnetzagentur. (2017, 16 October). *EEG-Umlage 2018 beträgt 6,79 ct/kWh*. [Press release]. Available at: https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/DE/2017/16102017_EEG-Umlage.html [Last accessed 14/12/2018]

Technology Neutrality – an Unapplied Requirement with Uncertain Benefits

Another issue raised in the interviews concerns the requirement of technological neutrality prescribed in point 126 of the EEAG¹²⁰, that is, the obligation to put in competition the different renewable energy sources. On this topic, more than on the others, views among the experts interviewed are varied. Expert 003 defends the measure on the grounds that “from a purely academic perspective, [it makes sense] to put everything that can compete into competition with each-other, because only then you get the most cost-effective outcome” while Expert 001 clearly is not in favour, stating that it is not coherent with the EU long-term objectives because an electricity system based only on renewables will need all (different) renewable energy sources to be viable:

“[...] if you built an energy system, it's not just about the competition rules [...]. You really need to understand how the system works. And from that perspective, what is currently on the table might not be the best solution to go forwards, including towards 2050, just because the fact that you need to build a system with many renewable energy sources, and you can only [...] in the way it is currently prescribed, this will not happen. Cost cannot be the only criterion.”

Expert 005, in turn, states that, although they are not (technical) experts in renewables, not all renewable energy sources seem to be equal (lines 199-201: “it looks a bit like all renewables seem kind of equal, which is kind of funny because – even though I’m not a renewables expert, I understand that it’s not...”).

Those kind of considerations seem to be behind the exemptions the EEAG allow for when it comes to the technology-neutrality requirement. Specifically, MS may not apply this requirement if they can prove that a specific technology needs to be promoted in order to achieve diversification or the longer-term potential of a given new and innovative technology, or technology-specific tenders are more efficient because of network constraints and grid stability or system (integration) costs.

The complementarity between different resources, esp. wind and solar, in different geographical areas is something which has been extensively researched in academic literature¹²¹ (a search on the university’s online database for the terms “wind AND solar AND complementarity” gives over 1600 peer-reviewed results). Correlation between solar- and wind-power varies in space and depends on the time scale considered¹²², but one simple graph copied from IRENA¹²³ (*Figure 6*) shows that this complementarity intuitively makes sense and should not be discarded by policymakers.

¹²⁰ “If [...] competitive bidding processes are open to all generators producing electricity from renewable energy sources on a non-discriminatory basis, the Commission will presume that the aid is proportionate and does not distort competition to an extent contrary to the internal market.”

¹²¹ Engeland, K., Borga, M., Creutin, J.D., François, B., Ramos, M.H., Vidal, J.P. (2017). “Space-time variability of climate variables and intermittent renewable electricity production – A review”. *Renewable and Sustainable Energy Reviews*, 79. Pages 600-617.

¹²² *Ibid.*

¹²³ International Renewable Energy Agency (IRENA). (2017b). *Adapting market design to high shares of variable renewable energy*. International Renewable Energy Agency: Abu Dhabi.

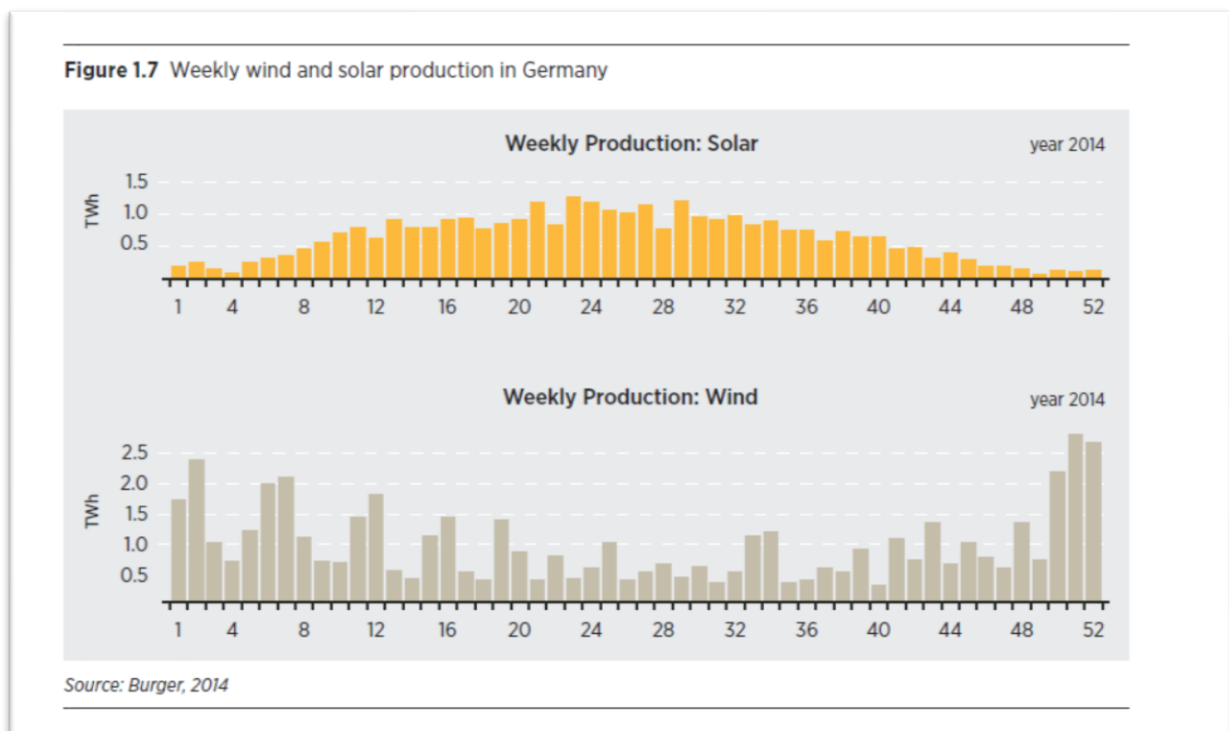


Figure 6 – Weekly wind and solar production in Germany. Source: International Renewable Energy Agency (IRENA). (2017b). Page 25

The reality of the implementation of the tender procedures somehow confirms this intuition. When looking at the implementation of the technology-neutrality requirement by the Commission and Member States, one does actually see that technology-specific tenders are still preferred by Member States and accepted by the European Commission. As shown by CEER¹²⁴, “technology-specific tenders are applied more often than technology-neutral tenders”, with 8 countries having implemented technology-specific tenders and 5 technology-neutral ones. CEER does however note that 3 further countries are moving towards technology-neutrality. Technology-specific tenders primarily focused on offshore wind (6 MS), onshore wind (5 MS), solar (5 MS) and biomass (5 MS).

As Expert 003 put it, the Commission “is not dogmatic” about technology-neutral tenders. Expert 005, having extensively researched the issue, confirms that “it’s quite easy to have a technology-specific scheme” (lines 120-121) and even asks: “if you can always in go the exemptions, is it still a principle?” (lines 124-125). Expert 005 also provides the example of one specific Commission decision referring to technology-specific support for hydropower, which was approved because the Commission recognised hydropower provided more “stable” energy supply. The expert wonders why this kind of reasoning is only followed for hydro, and suggest that if it was applied to all renewable technologies, technology-specific tenders should be the norm (lines 201-205):

[...] if you go to hydro, they made this surprising statement which is correct: hydro can sometimes be more stable than others... they don’t go into that question, but I think they should. Because, you know, if you would start going into that issue, then you would also

¹²⁴ Council of European Energy Regulators (CEER). (2018). *Op. cit.*

have other arguments for saying “OK, we might actually need technical specificity, and not technical neutrality” [...]

In addition to the reason of achieving a long-term system with different renewable energy sources, another criticism to this requirement are connected to other issues analysed in this thesis, that is: the “real”-level of competition (and thus cost reductions) that can be achieved and the difficulty of actually designing technology-neutral tenders¹²⁵.

As stated before, the main argument in favour of technology neutrality is that it will “stimulate competition”¹²⁶ between renewable energy sources and lead to the most cost-efficient outcome. It may therefore seem strange that some technology-neutral tenders in the EU were not won by what generally would have been the “cheapest option”. This was, for example, the case in the Netherlands, where PV projects emerged as the most competitive technology (49% of awards in 2017), followed by onshore wind projects (38%)¹²⁷, whereas, from a global perspective, the LCOE for onshore wind is lower than for solar¹²⁸.

This means that if investors expect to get higher prices in another tender or know that they do not face enough competition, they will make no effort to reduce their prices. Thus, it will not always be the most “cost-efficient” technology that wins the tender as, in some cases, companies will not even bother to participate if they think they can get higher prices elsewhere. In this sense, the example of Germany and the German-Danish common tender provided by Expert 004 is very telling (lines 78-90):

[...] wind and PV could participate but only PV won, which was in a way surprising... I mean in the end it wasn't so surprising, because indeed, on the one hand the cost of PV had come down, and on the other hand, there's -for wind energy- there's limited competition in Germany at the moment, because there's not... you know, there's still now the technology specific wind tenders... and I think all wind bidders knew... well, they had an expectation that they could get higher prices because there's not that many sites, wind sites, available at the moment... while for PV the competition was tougher, and I think this is like one reason why you can see that PV won, because for wind didn't really have a reason to go down in price so much... -that's what you see quite often, that was actually also the case between Germany and Denmark, they had a joint tender, we are also surprised, why do the Danish PV plants win compared to the German ones? Again, because Germans could realise higher prices in their national tender while Danish couldn't

¹²⁵ This issue was researched by the EU “AURES” project, which came to the conclusion that “it is very difficult to design an auction that is actually neutral to all technologies”. This difficulty is mainly due to the diverse characteristics (e.g. regarding planning procedures) of different technologies, which are “impacted differently by the same prequalification criteria and realisation periods”. Mora, D. *et al.* (2017). *Auctions for renewable energy support - Taming the beast of competitive bidding: Final report of the AURES Project* [Report D9.2.]. p.6.

¹²⁶ See European Commission. (2017, 29 September). *State aid: Commission endorses four support schemes to deploy more than 7.5 gigawatts capacity in renewable energy in France*. [Press release]. IP/17/3581. Available at: http://europa.eu/rapid/press-release_IP-17-3581_en.htm [Last accessed 05/01/2019]

¹²⁷ Council of European Energy Regulators (CEER). (2018). p. 31

¹²⁸ International Renewable Energy Agency (IRENA). (2018b). *Renewable Power Generation Costs in 2017*. IRENA: Abu Dhabi. ISBN:978-92-9260-040-2.

so they went down with prices... So it's not just a question of the actual cost but also of what prices can you realise with competition.

To summarise, problems of coordination within or between countries' tender schemes can lead to limited offers being presented. While this can also happen in technology-specific tenders, the problem seems nevertheless to be more obvious in technology-neutral ones. We could therefore say that, in order for the principle of technology-neutrality to work, a perfectly competitive market or, at least, the coordination between MS for the organisation of tenders, would be necessary.

More generally, some studies and authors point out that technology-neutrality forgets the long-term dynamic system perspective that may lead to cost reductions in more expensive but more efficient technologies in the future through technology learning. Therefore, "technology neutral auctions might not lead to the lowest generation costs when considering a longer time period"¹²⁹.

Although technology-neutrality makes sense from a purely static (microeconomic) perspective, it may not lead to the most cost-efficient outcome both in the short and in the long term. We have seen that, in the short term, the price achieved will not only always reflect the "actual cost" but the cost that can be obtained through competition –if, for a series of reasons, companies feel there is no need to compete, the cost will be higher. In the longer term, a more cost-efficient solution could be found thanks to technological learning curves in more efficient (but currently more expensive) technologies. Given that technology-neutral tenders are not yet fully implemented, the long-term effects of technology-neutral tenders on the deployment of renewables and therefore on reaching the EU energy and climate targets, still remains to be seen.

This is confirmed by the interviews we carried out. Experts do not see any clear benefit to this requirement, especially when it comes to achieving an energy system that is based (almost) exclusively on renewables. On the one hand, technology-neutral tenders do not always help to choose the cheapest technology on the market and, on the other hand, supposing they did, it would still be questionable, both from a technical and from a competition point of view, to have a market that relies on one or two technologies only. We can therefore conclude that the technology-neutrality requirement does not seem, today, to be fully coherent with the EU long-term objectives.

¹²⁹ Mora, D. *et al.* (2017). *Op. cit.* p.5 ; Jacobsson, S., Bergek, A., Sandén, B. (2017). *Op. cit.*

Citizens Investment – an Unpicked Low-Hanging Fruit

Another criticism made to the competitive procedures prescribed by the EEAG is that they exclude smaller actors, namely citizens and citizen cooperatives, from participating. This point is made by Experts 002, 004 and 005, albeit with different viewpoints. While this exclusion is not a “formal” exclusion, it is mainly due to a series of circumstances that produce a “de facto” exclusion. As Expert 002 put it (lines 88-93):

“The market has become so professionalised and competitive that the citizens, who were originally the ones investing in this, have been pushed out of the market, and now you have state aid guidelines which tell MS that they have to adopt a certain way to grant support, in a way that inherently conflict with the way citizens raise finance to participate in projects. So competitive bidding is not appropriate for everyday citizens or community project members. They simply aren’t.”

Expert 004 raises two issues which are relevant when considering citizens’ participation in tenders: the exemptions/thresholds and the adaptation of the tender design criteria to specific actors. Regarding the first point, as we have already mentioned in Section 4.2., the EEAG allow for a series of exemptions to the conditions they impose. These include:

- Exemptions to the general conditions (aid granted as premium, beneficiaries are subject to standard balancing responsibilities and no incentive to generate electricity under negative prices) to installations with an installed electricity capacity of less than 500 kW or demonstration projects, except for electricity from wind energy where an installed electricity capacity of 3 MW or 3 generation units applies.
- Exemptions to the competitive bidding requirement to installations with an installed electricity capacity of less than 1 MW, or demonstration projects, except for electricity from wind energy, for installations with an installed electricity capacity of up to 6 MW or 6 generation units.

A quick Internet search shows that, in 2017, the average onshore turbine had a capacity of 2.7 MW and 1 solar PV module had an average power of around 200 - 300 W¹³⁰. Thus, as confirmed by Expert 004, the issue of the participation of cooperatives mostly concerns wind onshore, with rooftop solar “basically exempted from auctions in most countries under the de minimis rules”.

Nevertheless, while in principle the EEAG would allow for some flexibility for smaller projects, not all EU Member States have used these exemptions. Looking at CEER (2018) we see that some countries (in this case Lithuania) forced all projects over 10 kW to participate in auctions. This shows that the exemption thresholds are not always relevant when assessing their impact on citizens’ participation, and a specific analysis of the Member States’ implementation has to be done. In addition, the lower thresholds do actually have the unintended consequence of pushing citizens towards smaller projects, as explained by Expert 002:

¹³⁰ EnergySage. How Much Energy Does a Solar Panel Actually Produce? Electricity Output Explained. Available at: <https://news.energysage.com/what-is-the-power-output-of-a-solar-panel/> [Last accessed 15/07/2018]

So under 500kW you don't need to participate in an auction, if it's above 500kW you must. And you have had now 9 rounds of these tenders. In the first 4 of those tenders you had 2 successful rescops^[131] winning and after that you have none. And the reason is not because they could not win, it's because they stopped participating. [...] they just said, we will just make small projects because there is no way for us to participate in something bigger. And so, this discriminates against them, because they have the potential to develop more, to develop larger projects, but it's not very cost-effective because they could be gaining a little bit in terms of economies of scale if they could make bigger projects, but they can't, so... so there's a real problem here.

This draws us to the conclusion that the exemption thresholds do actually have a negative impact on larger citizens' projects. They do however allow Member States to continue funding individual households, even though that cancels out the "community" in the project development. This is also confirmed by Expert 002, who does not see the exemptions as a "solution" for citizen project and instead calls for exemptions based on the type of actor, and not the size of the project (lines 93-95).

Second, the size of the tender is not the only requirement that can have an impact on citizens' participation and other tender design elements are also relevant. The AURES Project final report¹³² explains that tenders can be designed to include other objectives than just cost, for example, "actor diversity". This is also pointed out by Expert 002, who mentions that the recognition of specific actors has been introduced into other state aid guidelines¹³³. Possible measures proposed by the report include: "reduced financial or material prequalification / penalty for small actors", "different pricing rule for small actors" or "contingents (quotas) for small actors". This was actually the case in Germany, where citizen energy cooperatives were allowed to submit bids without having to obtain a licence beforehand and also granted a longer implementation period¹³⁴. In that case, the rules were however later modified due to doubts about the authenticity of citizens projects¹³⁵.

Yeah, I think the design can make quite a difference. If you put high financial requirements, like high bid bonds, that usually scares away bidders... and in other cases, I think it's more feasible... but I guess -to some extent that's what we saw in Germany- was that it's a general discussion on what are you actually trying to protect: whether you follow the discussion on community energy rules in Germany, that's not very fortunate... Because I think there they try to preserve a very specific business model which was then kind of also exploited by professional project developers.

¹³¹ "Renewable Energy Cooperatives".

¹³² Mora, D. *et al.* (2017). *Op. Cit.*

¹³³ Interview 002, lines 117-121: "that isn't to say that the state aid guidelines don't have a precedent for doing this type of acknowledgement. The agricultural state aid guidelines, they actually they actually have some exemptions for agricultural cooperatives. So there is precedent for looking at different types of market actors, and having some kind of acknowledgement under the state aid guidelines to ensure that they maintain a level playing field."

¹³⁴ Wehrmann, B. Clean Energy Wire. (2017, 30 November). *High hopes and concerns over onshore wind power auctions*. [Webpage]. Available at: <https://www.cleanenergywire.org/factsheets/high-hopes-and-concerns-over-onshore-wind-power-auctions> [Last accessed 14/10/2018]

¹³⁵ Clean Energy Wire. (2017, 29 August). *Big corporation benefits from citizens' energy*. [Webpage]. Available at: <https://www.cleanenergywire.org/news/climate-change-may-shift-european-power-demand-south-study/big-corporation-benefits-citizens-energy> [Last accessed 14/10/2018]

Now that we have confirmed that competitive bidding procedures do have an influence on the participation of certain types of actors, we need to ask what the role of those actors is in achieving the EU climate and energy objectives. The key question to ask is therefore in how far the participation of citizens and energy cooperatives is essential to reach the EU climate and energy goals (As Expert 004 puts it: “So I think there you have to ask yourself, well... why do you really want to protect certain actors?”).

Data on the investment by households and cooperatives is scarce. IRENA and CPI¹³⁶ show that, between 2013 and 2016, households, “including high-net worth individuals and their investment offices”, made up an average of around 16% of total private investments. More specific data for the EU was collected by CE Delft in 2016¹³⁷. This data shows that in 2015 citizens (households, micro- and small enterprises, collectives and public entities) installed 42,000 MW of wind capacity (42% of total EU capacity) and 38,000 MW of solar capacity (39% of total capacity)¹³⁸. “Collectives” (cooperatives) made up a very small share of that, with the biggest shares held by companies (for wind) and households (for solar). A recent study focusing on Germany¹³⁹ showed that in 2016, 31.5% of total installed renewable energy capacity in that country was owned by private individuals and another 10.5% by farmers, bringing citizens’ energy ownership to 42%, down from 46% in 2012¹⁴⁰.

The different investor scene from one country to another shown by those figures is confirmed in other reports. Generally speaking, small and large consumers make up a large part of investors in Germany, whereas in other EU countries their participation is much more limited (Iberia, UK, Nordics)¹⁴¹. We could therefore conclude that while data on citizens’ investments in renewable energy in Europe is scarce, citizens (be it individuals, SMEs or cooperatives) have had a certain impact on investments, albeit to a different extent from country to country. This point was made by Expert 004, who is of the opinion that the specific actor scene in a country has to be considered:

I wouldn't say it's always the case, or generally the case, because you always have to look at the different countries, where do they stand. I mean, in a way, you see that maybe countries don't really have such a diverse actor scene... I mean, in Germany it was a big discussion, because in Germany this kind of actor was always a big topic; I think in other countries it was less. Maybe there the effect is less relevant.

However, according to Expert 005, the lack of participation of citizens in a market should not be taken as an excuse to exclude them altogether:

¹³⁶ International Renewable Energy Agency (IRENA), Climate Policy Initiative (CPI). (2018). *Op. cit.*

¹³⁷ Afman, M., Blommerde, J., Kampman, B. (2016). *The potential of energy citizens in the European Union*. [Study and Excel Workbook]. CE Delft: Delft, September 2016.

¹³⁸ Own calculations based on Afman, M., Blommerde, J., Kampman, B. (2016). *Op. cit.*

¹³⁹ Borchert, L. Wettengel, J. Clean Energy Wire. (2018, 25 October). *Citizens' participation in the Energiewende*. [Webpage]. Available at: <https://www.cleanenergywire.org/factsheets/citizens-participation-energiewende> [Last accessed 05/01/2019]

¹⁴⁰ *Ibid.*

¹⁴¹ Nelson, D., O'Connell, B., De Lorenzo, L., Huxham, M. (2016). *European Renewable Energy Policy and Investment*. Climate Policy Initiative, November 2016.

"[...] there is an increasing understanding that energy communities are actually a very important actor in the kind of energy transitions we want. We are not talking about the shape they need to have but simply the fact that these energy communities can help explore the potential of consumers, and local potential, is actually also something which makes many people to believe that if you would give them the space to do this, and the funding to do this, they would actually help us to decrease all of the issues we will be running into in the future, I mean stabilise the market, etc."

Apart from their "investment capacity", a second main argument for defending the need for citizens and cooperatives to participate in renewable energy investment is because this participation is thought to enhance the public approval of renewable energy technologies. Experts 002 and 005 clearly state that citizens' and cooperative investment is essential to reach public acceptance of renewable energies as well as help deploy renewables, while Expert 004 is more nuanced:

"If it increases acceptance, I think that may be a fair reason... but then you also have to see what really is going to be the acceptance locally. I mean what we saw partly it's also, it might be smaller projects are more acceptable but not always... there is not only the size of the project developer but also how well they are connected in the local region... whether they get support for developing wind projects... anyway, it's mainly a challenge for wind onshore, because PV is less critical in this respect, and offshore is obviously not directly affecting communities..."

Research¹⁴² shows that "limited participation opportunities (e.g. information, consultation, cooperation) and untimely involvement of locals in project development" can create a sense of "procedural unfairness" that will harm the local acceptance of a project. We would therefore conclude that citizens participation, albeit not central in all countries, can both help increase investments and public acceptance, in addition to providing a counter-weight to increasing cost for consumers.

The Challenges of Implementation – Procedural Issues Harming Investor Confidence

This category contains a heterogeneous set of issues related to the approval process of national support programmes, to how they are implemented to and to the revision of the EEAG, which produce lack of "visibility" for investor and are perceived as harming investor confidence. As Expert 006 (line 32) puts it, investors generally look for "certainty and stability", which is not provided in the current state of affairs. The main issues raised under this point relate to a lack of transparency in the approval process of funding schemes by the European Commission, the lack of consultation with industry of Members States organising tender schemes and, finally, the lack of certainty with regards the revision of the EEAG.

Expert 001 refers to the "transition phase" towards the new competitive bidding mechanism in general, stating that "it has been a very big challenge for the industry, because all of a sudden you introduce a mechanism no one knows exactly how it will work". This general uncertainty is linked to when the new system will be introduced and then when the tenders will be called (lines 6-9):

¹⁴² Hu, J., Harmsen, R., Crijns-Graus, W., Worrell, E. (2018). *Op. cit.*

"[...] the biggest impact we have seen is that there has really been a slow-down [...] in wind installations because of the fact that it takes a while for government to design such support schemes, and you have a very long period where you don't know whether there will be a new round of capacity to make your investment, whether you will be remunerated and so forth."

Expert 002 goes in the same line and states that the lack of certainty for investors is linked to the lack of transparency in the approval process of the support schemes by the European Commissions' Directorate-General for Competition:

"I think procedurally it has created a lot of problems, mainly because the state aid guidelines and the way that DG COMP goes through their procedures to get support schemes passed or agreed upon by the Commission is very non transparent. Once a mem... you don't even necessarily know if a Member State has notified a support scheme to the Commission... and even if they will tell you they have, the Commission won't tell you anything about it, and the Member State it isn't really obliged to either."

The specificities of this approval process were explained by Expert 003 upon our request. However, that Expert does not seem to be aware of the effect the lack of transparency has on investors :

Usually, if the Commission doesn't like a measure that is being proposed, nobody will ever see it, because the MS will get an idea that the Commission is not very happy with it, that it is not in line with the guidelines, and therefore it won't even formally notify it. So the measure get... dies basically in the pre-notification phase.

A specific example of the consequences of this procedure and the communication and transparency problems it creates, is provided by Expert 002, who provides the example of a UK tax relief scheme:

"... the concrete example is that cooperatives in the UK have been able to invest, the individual investors in a cooperative have been able to invest in income tax saving. It's called EIS scheme, and it was very good, because basically it told citizen investors that if you invest in like a social oriented company you can get a benefit on your taxes. And then the government said we won't take it away or whatever, so they were really clear in communicating how they were doing this. And then they send something to DG COMP, nobody knew what was going on, and it completely stopped like any new development, simply because nobody had an idea of what the hell was going on."

In this example, it is very clear that investors follow the market very closely, and adapt their investment to planned subsidy schemes. Incidentally, it is interesting to note that, while media did report on this policy change¹⁴³, it was indeed not directly associated (at least by the broader public) to policy changes at the EU level. The link was however perceived by the investor community.

¹⁴³ Palin, A. (2015, 11 November). "Tax incentive axed for local energy projects". *Financial Times*. Available at: <https://www.ft.com/content/07f89b32-86f6-11e5-9f8c-a8d619fa707c> [Last accessed 25/10/2018]; Vaughan, A. (2015, 5 November). "Treasury tax plans will 'decimate' UK's community energy projects". *The Guardian*.

A second major issue under this category concerns the implementation of tenders by Member States, once the scheme has been approved by the European Commission. Two sub-issues can be included under this: the first one concerns the tender design stage and the other the “scheduling” or time-frames in which the tenders are launched.

Expert 001 explains that a good tender design, leading to lower prices, has to include the consultations with the industry in the tender design, and gives Denmark as a good example in this (lines 65-73):

“the prices are falling, the tenders would be a good option to incentivise cost reductions in the deployment of renewables, that’s fine. But it’s just the question of how we do it. In what time-frames, to what extent you consult with the industry, do we discuss the design of the tenders so that it works for investors and for the government at the same time? Some countries for instance have very good consultation processes, for instance Denmark for offshore wind. Before they launch a tender, they invite potential investors, the biggest players for instance that would be interested in their market. So they invite them, they show them the tender design criteria they are thinking about and they exchange. So that’s how they do design something that works for everyone. That’s why they managed to [cut] the prices.”

This seems to be confirmed by European Energy Regulators, who in their recent report on tender mechanisms¹⁴⁴ recommend that Member States “consult with the parties involved” in order to “learn the specificities of the market, the technology and the bidders”.

The second sub-issue linked to the implementation of tenders by Member States concerns the timelines in which these processes are implemented and the inherent attributes of tender processes, that create a sort of “stop-and-go” situation for investors. That is perceived as a big challenge from the point of view of supply chain management and also because of the uncertainty of winning a tender.

Expert 002 is very clear in stating that the system as it is implemented is “not very efficient” to spur investment:

“what you see after that is that nobody is investing because they have no idea what they can expect. So, they have no visibility, that’s bad for investment. Then, after the decision comes out, you have a race to get into the... to receive the benefit before it ends. So then you have this whole rush of investment and then just completely it falls off a cliff. And that’s really not the way you want to be promoting investment in clean-tech or renewables. So the whole way this thing is designed is not very efficient.”

Available at: <https://www.theguardian.com/environment/2015/nov/05/treasury-tax-plans-will-decimate-community-energy-projects> [Last accessed 25/10/2018].

¹⁴⁴ Council of European Energy Regulators (CEER). (2018). *Op. cit.* p.34

Expert 001 provides the (bad) example of Spain to illustrate the same issue, and link the lack of visibility to possible low realisation rates of projects, which ultimately would prevent the country from reaching its renewables' target (lines 106-114):

"I would give Spain again as a sort of bad example...[...] So since 2014 they had 0 deployment because they [cut] the support scheme, and then in 2016 they launched the first tender. And then they launched the subsequent tender. So now all of a sudden the government tendered 8 GW of renewable capacity that needs to be built by 2020 and that's a huge challenge for the supply chain, because all of a sudden you have a huge amount, and you need to see how you factor it, how your resources can actually cope to build so much capacity in such a short period of time. [...] Maybe sometimes it wouldn't be possible to do it, and, if you don't get build, then what do you do? [...] you will be behind your targets"

In addition, expert 001 correlates the "stop-and-go" situations to the actual fact of the industry being able to deliver what is requested, that is, how much of the tendered capacity is actually build. This generally measured through an indicator called "realisation rate". Regarding this indicator, very limited empirical evidence is available today. CEER shows that for technology-specific wind and PV tenders realisation are "generally high", although not always 100%, but does not have any evidence at all for technology-neutral tenders.

Finally, Expert 006 states that the uncertainties around the possible revision of the EEAG in 2019 is not helping either, echoing the implementation issues mentioned by Expert 001:

"that's really an open question that we don't like very much, because you don't know what will happen. I mean, I don't think the Commission is keen to make many changes to it, because the... They have been only implemented for a few years after all, so I don't think [they] want many changes to that. But it would be good to know, I mean, if you [...] with changes it's never really good... "

To conclude, this section has brought to surface a general sentiment of discontentment with how the general implementation of the EEAG is handled both by the European Commission and the Member States. We have seen that the lack of transparency and communication with investors leads to a lack of investor confidence that, in turn, harms investment. As a consequence, investors are today looking for other ways to finance their projects, as the interview with Expert 006 shows ("the auction system does not necessarily seems to be sufficient to all, so we are looking at other ways to promote investment"). Very clearly, the lack of transparency in the implementation of the EEAG does not speak in favour of coherence.

6. Conclusions and recommendations

With this work, we have to shed light on the controversies caused by the adoption and implementation of the “competitive bidding” support mechanisms prescribed by the EEAG in order to determine whether they are coherent with the EU climate and energy objectives and therefore contribute to the EU’s objectives of increasing energy production from renewable energy sources and reducing greenhouse gas emissions. This analysis was based on a methodology developed by Nilsson *et al.*¹⁴⁵. Interviews with six experts in renewable energy and EU competition policy were carried out to try to determine the impact of the EEAG tenders on EU objectives and the sense of this impact (synergy or contradiction). The expert’s views were complemented with data and views from relevant third parties (grey and scientific literature).

As was shown in Section 5.1., experts and international institutions agree that the current investment climate for renewable energy is not good at present. We saw that the introduction of the tender mechanisms under the EEAG had a negative impact on investments due to stop-and-go situations in the calls for tender and the “lack of visibility” for investors, who have no certainty as to when tenders will be called. We also saw that the adaptation to tender processes was only one reason among others having a negative influence on the investment climate. Other reasons, not linked to the EEAG, include a dysfunctional ETS and limited pricing of negative externalities, political interference in markets, regulatory uncertainties and low wholesale prices for electricity on energy market. Therefore, the analysis confirmed that, although the transition to the tender mechanisms prescribed in the EEAG did have a negative effect on investor confidence, other factors related to political decision-making and the functioning of the market also play a role.

However, the fact of the EEAG only being one reason among others that have a negative impact on investments should not lead to the conclusion that their analysis is not relevant. On the contrary, market-related issues such as low wholesale prices and the limited pricing of externalities do in fact explain why support policies are still needed despite the competitiveness of renewable electricity. This is also confirmed in the text of the EEAG, which repeatedly refer to “market failures” that (even with RES being competitive) justify public intervention.

Section 5.2. tried to provide an answer to the research question by listing the main elements speaking for and against coherence between tender mechanisms and EU policy objectives. As a general first observation, we saw that the opinions of the experts were quite balanced when it comes to assessing the “direction” of the interaction, with 3 interviewees seeing more synergies and the 3 others seeing more contradictions. Interestingly, and contrary to the opinions frequently found in literature, no expert explicitly called for a return to other (previously implemented) mechanisms.

The main issues identified by experts in the interviews were classified into four main groups: cost reductions linked to tenders; issues linked to the approval process of the funding schemes, the design and frequency of the tenders and the review of the EEAG; the technology neutrality requirement, and the impact the EEAG have had on the participation of certain types of investors, especially citizens.

¹⁴⁵ Nilsson, M., Zamparutti, T., Petersen, J.E., Nykvist, B., Rudberg, P., McGuinn, J. (2012). *Op. cit.*

Only one of those issues corresponded to the policy objectives and measures identified in Section 4.2. (technology neutrality). The other issues go beyond what can be inferred from only a textual analysis of the EEAG (issues linked to citizens' investment, implementation issues). Finally, the "cost" issue, identified as the only major argument in favour of coherence, is based on the general assumption that more competition will lead to cost reductions and therefore to more investment.

"Cost reductions" are generally seen as the main argument speaking in favour of the coherence of the EEAG tender mechanisms with the EU energy and climate objectives. **Tenders are thought to reduce "costs", which is good for consumers and for investors (Member States), who will be able to "get more bang for the buck"**¹⁴⁶. Therefore, supporting cost reductions in RES-E is seen as being coherent with EU climate and energy objectives. Nevertheless, the debate becomes more complex as soon as one starts looking at which "costs" are actually impacted by tender mechanisms. While tenders are generally taken as a way to reduce financing costs for countries, which do not have to "guess" what the cost of a given technology is at a given moment in time and in a certain geographical area, it is less sure whether tenders also help to reduce the "absolute" cost of technology (LCOE) by promoting more competition. In addition, it still seems too early to determine whether reduced costs do actually, on their own, lead to more capacity installed.

As was shown in Section 5.1., costs are not the only factor influencing investment decisions; however, lower costs should (at least from a purely micro-economic point of view) contribute to more RES-E capacity installed. Unfortunately, the short implementation time-frame of the EEAG does not yet allow to assess the exact causal relationship between tender mechanisms, cost reductions and capacity installed, and further quantitative research would be needed.

A final argument in favour of tenders is the reduced costs for consumers, who pay for the renewable energy support through taxes and levies on their energy bills. Reduced costs may increase acceptability of RES-E, however, its main asset is that lower taxes and levies should make energy bills more affordable, thus ensuring coherence with a less well-known EU energy and climate objective which is "ensuring the competitiveness of European economies and the availability of affordable energy". Therefore, **while lower costs do generally speak in favour of the coherence of tender mechanisms with EU climate objectives, further evidence would be needed to support this observation.**

Closely linked to the "cost" debate is the requirement of "technology neutrality", which seeks to reduce costs and introduce RES into the market by promoting competition between different renewable energy technologies. "Technology neutrality" proved to be one of the most controversial issues raised in interviews, with some experts seeing it as coherent with EU energy and climate objectives and others not. The experts in favour were of the opinion that tenders would be more efficient (that is, would lead to more cost reductions) if all technologies were put in competition. The experts speaking against the coherence of this requirement based their argument on the fact that an electricity system running almost exclusively on renewables would need to include all different technologies, and not just the cheapest ones. We saw that this argument is back by extensive research,

¹⁴⁶ Frankfurt School of Finance and Management: "More Bang for the Buck: Record New Renewable Power Capacity Added at Lower Cost" [Press release]. Frankfurt am Main, April 6, 2017. Available at: <https://www.frankfurt-school.de/en/home/newsroom/news/2017/april/unep-global-trends-renewable-energy> [last accessed on 27/12/2018]

while much less evidence was available on the benefits of putting different renewable technologies in competition.

As most Member States still prefer technology-specific tenders, there is not yet much data available on the outcome of technology-neutral tenders. We did however see that, in some cases, technology neutral tenders did not have the effect of promoting the cheapest technology on the global market, but the one where there was more competition locally (because no technology-specific tenders were available). We therefore saw that the initial level of competition was an essential element in achieving cost reductions: in certain cases, it was not the “cheapest” technology that won but the one where there was more competition in the first place.

Through the testimonies collected from experts, we saw that the exemptions to that principle were still applied more often than not, suggesting that the European Commission was aware of the limitations of that principle. Therefore, while more data would be needed on the outcome of technology-neutral tenders, we conclude that **technology-neutrality is a two-edged sword**: supposing that there was perfect competition, this requirement **could be beneficial in the sense that it would help reduce costs**; however, in that case, **it could still be discussed whether a system running only on one or two technologies (i.e. the cheapest ones) would help increase security of supply**, which is also an objective of EU climate and energy policy.

Another issue raised by experts, mostly as an argument against coherence, was the fact that tender systems limit citizens' investment in renewable energy. Experts confirmed that competitive bidding mechanisms impact citizen investment negatively because of the specific characteristics of tenders. Nevertheless, the real impact of this issue on the coherence of the EEAG with long-term objectives will depend on the general impact of citizens' participation on EU climate and energy objectives and targets.

We saw that that **citizens' investment** varies greatly from one country to another, with some countries having a lot of citizens investing and other almost none, although this of course does not reduce their absolute investment potential –one could wonder how issues would look like if citizens' participation had been encouraged in the first place. Therefore, while citizens' participation may have only a minor impact on the overall achievement of the EU renewable energy target, this should not be a reason to dismiss it. On the contrary, the **promotion of citizen investment is a no-regret option to both increase investments and public acceptance of renewables. The fact that the EEAG do not promote citizens' investment is therefore an argument speaking against its coherence with the EU targets** of promoting RES and reduce GHG emissions.

Finally, a last issue identified by experts as adversely affecting investments were “procedural issues” linked to the implementation of the tender mechanisms. This category comprises a heterogeneous set of issues related to the approval process of national support programmes by the European Commission, to how tenders are organised by Member States and to the revision of the EEAG. All those issues lead to a lack of “visibility” for investors, thus harming investor confidence. This is especially worrisome, as competitive bidding was presented as a way to provide investor certainty in comparison to the retroactive changes that several Member States had introduced as from 2010 because of soaring RES-E financing costs.

Of course, “procedural issues” such as the lack of transparency of state aid schemes and lack of consultation and communication by Member States are not inherent or exclusive to tender schemes. The lack of transparency in the approval of state aid schemes by Member States can be applied to state aid in general, as the approval procedures are the same. On the side of the implementation by Member States (organisation of tenders), some experts provide cases of good practices that could easily be applied in all countries. Finally, the uncertainty around the revision of the EEAG themselves should, at the very latest, disappear next year. The only major danger would be that the European Commission decides to again change the scheme completely, at a time when both Member States and investors are still in a “learning phase”. Therefore, **while those “procedural” issues currently do not speak for coherence with the EU target of promoting renewable energy, they are not inherent to tender schemes and could easily be corrected.**

We started this work by explaining that the energy transition, that is, the transformation of the electricity system into a near-carbon free system, is a complex transformatory process requiring large-scale transformations¹⁴⁷, involving not only “technological changes, but also changes in elements such as user practices, regulation, industrial networks, infrastructure, and symbolic meaning”¹⁴⁸. In addition, this process is not a linear process and is full of political conflict and struggles¹⁴⁹. In this research, **we conclude that the speed of the transition to clean electricity has been slowed by the introduction of tender schemes imposed by the EEAG**: member States and investors need to adapt to a new way of working, and certain actors (especially citizens) feel that they have been left out. However, we have also seen that the “energy transition” is not an objective in itself under EU law, and that the EU has set itself specific targets but also broad objectives, uniting environmental, economic and social considerations. Therefore, **while the EEAG appear to not be coherent with certain EU targets (increasing production of electricity from renewable sources and reducing CO2 emissions) they are nevertheless coherent with larger objectives, namely ensuring affordable energy prices**, even though the specific impact of the tender mechanisms on energy prices still needs to be assessed.

As we saw in the introductory section, “low-carbon transitions require complex negotiations and trade-offs between multiple objectives and constraints, including cost-effectiveness, equity, social acceptance (legitimacy), political feasibility, resilience, and flexibility”¹⁵⁰. Renewable energy investors need certainty to put their money into projects, Member States need to have a way to control the costs they allocate to fund renewable energy and which they recover from consumers, and citizens need to be able to participate in the energy transition if they wish so. In addition, society needs to decide whether it wants to choose the cheapest system in the short term or the one that provides more security in the long-term; and who should pay for it. Each actor has their own objectives, and it should be for policymakers to find the right balance between objectives to achieve a suitable outcome for everyone.

The danger is however to too easily put one objective (such as cost-effectiveness) over any other (equity, social acceptance or even technical feasibility), without analysing the synergies and

¹⁴⁷ Jacobsson, S., Bergek, A., Sandén, B. (2017). *Op. cit.*

¹⁴⁸ Geels, F. W. (2002). *Op. cit.*

¹⁴⁹ Geels, F.W, Sovacool, B. K., Schwanen, T., Sorrell, S. (2017). *Op. cit.*

¹⁵⁰ *Ibid.*

contradictions between different policy objectives, and without taking into account the views of stakeholders, researchers and other actors involved. Specifically, our analysis shown that main argument in favour of tendering is cost reductions. However, “cost” is not the only criterion to trigger investment. Any reasoning based on promoting investment through cost reductions will therefore need to be attached to larger changes in market functioning to lead to a favourable outcome. Finally, as also mentioned by one of the experts, we will need to ask ourselves what kind of energy system and transition we want¹⁵¹. For now, citizens’ investment and the promotion of different technologies are not among EU global objectives, as we saw in Section 4.1., although this may be changing.

In December 2018, the EU published its new Renewable Energy Directive (Directive 2018/2001¹⁵²). In its article 4, that directive strongly supports the approach taken by the EEAG and confirms that tenders are here to stay. Today, the EU seems to be globally on track with its pledges to reduce greenhouse gas emissions. However, that new directive also strongly encourages the participation of citizens and local authorities in renewable energy projects through “renewable energy communities” as well as “renewables self-consumption”¹⁵³.

As we have seen, a funding system based on tenders can in fact provide a good balance between different objectives: while less efficient from an environmental point of view (with less projects being funded), tenders can potentially be better from a social point of view, with reduced financing costs for countries and for consumers. The promotion of lower costs, of a variety of environmental-friendly technologies and of citizens participation are not conflicting interests, and can all potentially be achieved within a system that keeps competitive bidding as a global principle and provides for adjustments and exceptions for specific actors and technologies.

For competitive bidding to be more effective and respond to the different objectives and interests at stake, the following recommendations should be followed:

- To make sure the objective of energy security is achieved, policy makers should take into account existing research and evidence on technology complementarity, and adjust tender schemes accordingly.
- In order to enhance public acceptance and allow citizens to take ownership of the transition, citizens participation should be promoted with some simple but carefully designed adaptations, such as specific tender criteria or exemptions for certain types of actors from competitive bidding.
- Investor confidence will be easily improved with more transparency in the approval and tender process. Member States should coordinate to avoid companies taking advantage of different tender conditions.
- In addition, the Commission should as soon as possible communicate its intention with regards to the revision of the EEAG.

¹⁵¹ Expert 001, lines 16-30; Expert 005, lines 46-53.

¹⁵² *Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources*. Official Journal of the EU L 328, 21.12.2018. Pages 82–209.

¹⁵³ *Ibid.*

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Annexes

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Annex I – Table of organisations represented by the experts interviewed

Short Name	Description	Website
ClientEarth (Brussels Office)	“We are the European Union’s leading environmental law organisation. We work with policymakers to create good laws and to strengthen weak ones. We make sure laws are properly implemented at EU and member state level. When governments and institutions fall short of their legal obligations our lawyers take action to protect the EU’s citizens and its environment.”	https://www.clientearth.org/european-union/
Eurelectric	“The Union of the Electricity Industry - Eurelectric is the sector association which represents the common interests of the electricity industry at pan-European level, plus its affiliates and associates on several other continents. We currently have over 35 full members, representing the electricity industry in 32 European countries.”	https://www.eurelectric.org/about-us/about-eurelectric/
European Commission	“The European Commission is the executive of the European Union and promotes its general interest.”	https://ec.europa.eu/commission/index_en
Navigant (Energy)	“Navigant is a specialized, global professional services firm. Our teams apply experience, foresight, and industry expertise to pinpoint emerging opportunities to help build, manage, and protect the business value of the clients we serve.”	https://www.navigant.com/about/company-overview
REScoop.eu	“REScoop.eu is the European federation for renewable energy cooperatives. We are a growing network of 1,500 European REScoops and their 1,000,000 citizens.”	https://www.rescoop.eu/federation
WindEurope	“WindEurope is the voice of the wind industry, actively promoting wind power in Europe and worldwide. We have over 450 members, active in over 40 countries. In addition to wind turbine manufacturers with a leading share of the world wind power market, our membership encompasses component suppliers, research institutes, national wind and renewables associations, developers, contractors, electricity providers, finance and insurance companies, and consultants.”	https://windeurope.org/about-us/

Annex II – Transcription of interviews

NOTES :

- *This section provides an anonymised transcript of the relevant parts of the interviews recorded.*
- *The formatting from one transcript to another may be different due to differences in the original transcripts, which had to be kept in order to ensure coherence with line numbers.*
- *For acronyms, please refer to the List of Acronyms on page 4.*
- *Unintelligible and omitted parts are marked with [...].*

Expert 001

1 E001: It has been a very big challenge for the industry, because all of a sudden you introduce a
2 mechanism no one knows exactly how it will work. The thing is that if you look before 2013 –we did
3 that with wind actually- so we wanted to know how many countries have had some kind of tender
4 experience, and in the European Union it is more or less 5, amongst which the UK in the early 1990,
5 and you also had some experiences in PT. But not all of them were quite successful. So [PT?] actually
6 dropped the tender mechanism. So the biggest impact we have seen is that there has really been a
7 slow-down [...] in wind installations because of the fact that it takes a while for government to design
8 such support schemes, and you have a very long period where you don't know whether there will be
9 a new round of capacity to make your investment, whether you will be remunerated and so forth. And
10 obviously because you are in competition with many other [...] so you run the risk that you never know
11 whether you will win the auction or not. I think this has also been quite an important challenge [...]. So
12 we are still in this transition phase, because it started in 2016. We see more and more countries going
13 towards a tender mechanism, and now the problem is to see whether they will work and how to design
14 them. From what we have seen, not everything works the way we would like it to work, so it's still a
15 learning phase.

16 The biggest challenge you see with the state aid guidelines and the way they interfere with energy
17 policy is that when you need to build an energy system, in the very long term –I am talking here 2050-
18 and if we want to go towards fully renewable energy system, then you need to have some sort of
19 coordination between technologies, which, with the tender process the way the Commission sees it
20 [...]. Because they say in the guidelines you need to do technology neutral, and actually the person
21 who offers the lowest price is the one who wins it. And if we follow the logic, onshore wind will win it
22 all the time. Maybe solar will win it after 2030 but essentially you would never have this coordination
23 that allows you to run the free tender system operation. For instance, solar is only active during the
24 day, [...] so what do you do in the evening? So for us this is the main challenge, and that is what we
25 also try to explain to [...]. In DG ENER they kind of get the argument, and they are on our side, but it's
26 very difficult to explain to DG COMP that it's the energy system, it's not just about price. And so that's
27 the reason why we would prefer to have technology-specific tenders instead of technology-neutral
28 ones because in the long-term there will be space for many technologies in the grid and not just the
29 cheapest ones, which would be again on-shore wind and solar. Anything else is just [...] because the
30 companies compete on price. This is what we advocate as an association.

31 Q: You have seen there has been a slow-down in installations, do you think this is just because of this
32 change in funding mechanism or are there also other reasons? Maybe lack of policy...

33 E001: I think the general investment climate is not good right now. So part of it is what we just
34 previously discussed [...] so the retroactive changes we have seen on many markets. Spain was I think
35 the most prominent example, but it hasn't only been Spain. It has been the CZ, RO, BG. And so if you
36 have these retroactive changes we actually saw that the European Commission has no capacity to
37 interfere or interact because they can't really start an infringement procedure. And now investors are
38 faced with this decision that you have to go very expensive court cases where you have the right to
39 win or not, and it takes a lot of time. So people essentially were pushed back. So that was one. The
40 second thing was the fact as I mentioned that we are in this transition towards this new support
41 mechanism, so obviously it will take at least until 2020 to see how it should be done. Because even if
42 you run a first auction, that's just a pilot experience. The Germans for instance they started
43 implementing auctions by 2016 and we see that every auction is not like the previous one because
44 there is always something that doesn't work. So by definition it's a mechanism that we need to adapt
45 in the years. Therefore, when you adapt and you are an investor you never actually know what the
46 next tender [...]. And the third one is that we discuss now the new regulatory framework for
47 renewables, the Clean Energy Package, so 2030. The other issue why we have a slow-down in
48 installation is because we don't know what is the outlook, what would be the capacity plans after 2020.

49 Q: So it's the issue of how much renewables we want...

50 E001: Yes, it's really about visibility; visibility in two senses. At the European level [...] the target. And
51 the other thing is the Commission proposes to every MS to develop a national plan where they outline
52 now much capacity for renewables they expect [...]. So this is something that need to come out some
53 time mid 2019. And so until then you still don't know what will come on the market. Whether it will
54 be 1000 GW or whether it will be just 2.

55 And from the investor's perspective it is right now a bit difficult to plan your activities in the supply
56 chain because you don't know [the resources in place?, so actually] in which markets you will have the
57 opportunity to compete.

58 Q: Yes, actually when you look at the reasoning of the EC, DG COMP, they always look at the LCOE so
59 the cost of producing, and according to them in many markets renewables are cheaper so investors
60 would naturally go for this kind of funding. So actually you would agree with that: we still need some
61 kind of support and price is not the only criterion?

62 E001: I mean, again, the market has many, many problems. You have a lot of overcapacity, I think there
63 is [...] competition with fossil fuels as well; so I would say –this is a personal option- but they really
64 push renewable investor to compete whereas they don't do it with the other technologies, so I don't
65 think that's fair. [...] the prices are falling, the tenders would be a good option to incentivise cost
66 reductions in the deployment of renewables, that's fine. But it's just the question of how we do it. In
67 what time-frames, to what extent you consult with the industry, do we discuss the design of the
68 tenders so that it works for investors and for the government at the same time? Some countries for
69 instance have very good consultation processes, for instance Denmark for offshore wind. Before they
70 launch a tender, they invite potential investors, the biggest players for instance that would be
71 interested in their market. So they invite them, they show them the tender design criteria they are
72 thinking about and they exchange. So that's how they do design something that works for everyone.
73 That's why they managed to [cut] the prices.

74 In Spain for instance that's just don't happening. The government does whatever they want, they
75 launch the tender, so on and so forth. So it's a two-way game. And that's why the next framework for
76 renewables, the Clean Energy Package, will really be quite decisive in whether or not we manage to
77 build a market which somehow is aligned to the 2050 objectives and which somehow makes sure we
78 are not locked-in in fossil fuels.

79 Q: So according to you, as they stand now, these guidelines would actually contribute to this lock-in
80 situation, or wouldn't they? This is one question. And the second question is if we wouldn't have, let's
81 say, you would be allowed to do some science-fiction exercise and we wouldn't have these guidelines,
82 what would be according to you the best way to encourage the development of renewables?

83 E001: I don't think we can blame the guidelines for the lock-in effect. It's not necessarily linked to the
84 guidelines but just in general how are markets [...] working. Because we have had a lot of regulation in
85 the energy sector, so it's first the 3rd energy package which was launched in [September] 2009 which
86 is not implemented in every Member State, although it was supposed to be implemented very quickly.
87 But we still have countries which [...]. So this is everything that has to do with liberalisation in the
88 sector, fair rules... We have countries, like in Bulgaria, where it's still pending. So that's one thing. And
89 the second thing is...

90 Q: Sorry, so this means that it's still difficult for new players to enter the market?

91 E001: Yes, because this unbundling that they were planning to have hasn't happened in every Member
92 State even though we are behind schedule already... So basically you have not even implemented the
93 framework for 2014 (it was supposed to be implemented) and now you start discussing the new
94 framework which is [...] So you would have on top of it even more rules to implement and you haven't
95 finished with the previous one, you see? So that's one thing.

96 And then, I think for the state aid guidelines, I think it's important to have competition rules which are
97 in place because it's an important competence of the European Union. [...] ensure that there is fair
98 competition. I think what needs to happen is that we wait a couple of years to see how the tenders
99 perform because... so basically there needs to be an assessment at a certain point of how these tenders
100 perform, because you would see a lot of cost reduction because people will compete on the price, so
101 obviously they are dropping already. But the question is afterwards whether these projects will be get
102 built. That's a big question. So it's not just how you cut the cost, it's about the realisation rate, as we
103 call it. And so, to actually see the realisation rate and see whether capacity will come on line you need
104 to wait a couple of years. You can't just start changing [...]. You need to have a proper assessment
105 because if [...] don't get build and you don't reach your target then the whole energy [...] is into
106 question. So that's the big question mark. Again, I would give Spain again as a sort of bad example...
107 I'm very sorry for the guys, but they had 0 deployment for 3 years, even 4. So since 2014 they had 0
108 deployment because they [cut] the support scheme, and then in 2016 they launched the first tender.
109 And then they launched the subsequent tender. So now all of a sudden the government tendered 8
110 GW of renewable capacity that needs to be built by 2020 and that's a huge challenge for the supply
111 chain, because all of a sudden you have a huge amount, and you need to see how you factor it, how
112 you're resources can actually cope to build so much capacity in such a short period of time. So [...] the
113 realisation rate that's also what [...]. Maybe sometimes it wouldn't be possible to do it, and, if you
114 don't get build, then what do you do? [...] and you will be behind your targets.

115 Q: So, and the general question I have is... so I mean what I actually want to study is: are these
116 guidelines coherent with what the EC or the EU wants to do in the long term? So if we look at the really
117 long term, and especially now the Paris agreement, which I think would have an impact on... I mean,

118 there is the whole issue of modelling... If we look in the really long term, are we being coherent with
119 what we are doing?

120 E001: From our perspective it's about [...] how open you are to hear the arguments from other people,
121 because for us, again, if you built an energy system, it's not just about the competition rules –as I
122 mentioned. You really need to understand how the system works. And from that perspective, what is
123 currently on the table might not be the best solution to go forwards, including towards 2050, just
124 because the fact that you need to build a system with many renewable energy sources, and you can
125 only [...] in the way it is currently prescribed, this will not happen. Cost cannot be the only criterion.

126 Q: Actually... are Member States implementing this technology-neutral...?

127 E001: I mean, what DG COMP is trying to do is really incentivise MS to go for the technology neutral
128 approach, but what we have also seen is that there is some flexibility. Because you don't have
129 harmonised policies across member states, so for many countries it is actually super difficult to
130 implement such technology-neutral tenders. Like in Germany, if you look at them, they for instance
131 have huge problems with the interconnection capacity. They have a specific scheme, you know, to
132 make sure they have an equal geographical distribution of their wind energy potential –not only wind
133 energy but also solar. So that's why it is super difficult for them to [...] technology-neutral tenders.
134 Because 2019 you would have projects only in the northern part of the country, because that's where
135 the best resource is. But actually they have no interconnection capacity to bring it to the South, where
136 the consumption is. So, from this perspective, you need some flexibility in the design, and I think, what
137 DG COMP was trying to a certain extent to accommodate... some sort of, you know, exemptions from
138 the general principle. So for the moment it's still working. I think it's also a question of how strong your
139 government is to negotiate such exemptions. Because I think for smaller Member States it would have
140 been very difficult to say [...] DG COMP. It really depends where you come from.

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148 Q: Good. So I understand that the coherence question is really difficult to answer because no one
149 knows what will happen...

150 E001: I think again, it really depends also on the Clean Energy Package. [...] because that's the
151 legislation that will put you on path or not on path to the medium term, which is 2030. Then as from
152 2030 then you would know what happens next. So from this perspective I think it's still too early to say
153 because it's still under negotiation and they will most probably have final text at the beginning 2019.
154 So we wait to see for that. And then it's also a question mark whether these state aid guidelines will
155 be revised immediately. So will there be new rules? That we still don't know. Because what they could
156 also do is just prolong the current ones for, let's say, another 5 years and then revise them. Or they
157 can revise them now directly.

158 Q: So whether they revise them directly or prolong would depend on the Clean Energy Package I guess?

159 E001: Yes, yes. But at least, again, as far as tenders are concerned, it doesn't make any sense to really
160 revise something drastically right now, because we still need a couple of years to see how they are
161 implemented. It's still I'd say this learning process. We will need to see some more examples of how
162 they work. So if you change the rules again in 2019, they have just started to implement in 2017...

163 Q: And in the really short term, I mean, if you look just at 2020, for me it's not clear; because the
164 Commission is saying we are reaching our target, but many MS are not reaching it. How do you see
165 this like, really 2020?

166 E001: I think in general we are quite on track. I think we have only 5 MS that are falling below their
167 trajectories for renewables. FR was lagging behind a bit because [...] the permitting process, and now
168 they are trying to ease a bit the Commission target. The NL was also falling behind... So... by 2020 there
169 are two things which could happen. So one thing is that you will have countries which will not reach
170 the 2020 targets; and so there is a question mark: will the Commission launch an infringement
171 procedure? Or will they leave them some leeway? And if you look at what is currently negotiated under
172 the Clean Energy Package, there is essentially this possibility for MS to have flexibility [...] So even if
173 they haven't reached by 2020 they would be given, let's say, another 2 years to make the process that
174 is necessary to [...] So it means no infringement procedure so far as we understand it. So that's still up
175 in the air. Now, if you give the flexibility, it means essentially that the whole 2020 process was
176 completely unbinding.

177 Q: But that was already the question when I was working at Europe Direct, when people would ask
178 when the Commission would launch an infringement...

179 E001: It's a very difficult political decision. So... that we don't know: question mark. The second thing
180 that could happen is that MS will start to implement more and more cooperation mechanisms under
181 the Directive. We have already seen 3 of them [Q: Luxembourg] Yes, so that is another way. I think it
182 would work pretty well if those countries that are lagging behind want to close the gap to their 2020
183 targets. So that would avoid this whole debate about infringement procedures, sanctions [...]. So, yeah,
184 maybe we will see other examples in the next years before 2020.

185 Q: So in the end we could say that the guidelines have not had like a big impact in reaching the target
186 or not.

187 E001: I think it is a combination [...] Again, we are in a transition, the retroactive changes, the economic
188 slow-down, so it is everything at the same time. I don't think you can say that there is one reason that
189 has helped this, but these put together, all of them, helped the fact that maybe we are a little bit
190 behind. So, it's one reason among others.

Expert 002

1 E002: So, I think there's probably three aspects that I would be concerned. The first two are general,
2 and then the third probably relates to my personal experience with our members. Not just our
3 members, but like.... Citizens, because we see them as really integral to the further uptake, not only
4 because there are challenges around public acceptance, but because there are also opportunities
5 around investment –but I'll get to that very last. The first two I would say are around certainty... So
6 first... and generally it's about investor certainty... and I think that this is paramount to continuing the
7 trajectory or the progress towards the targets in a cost-efficient, efficient whatever you want to use,
8 manner.

9 I see two issues with the state aid guidelines: the first is about how these obligations impact general
10 investor certainty in how support mechanisms are going to change over time. And eh... I don't know,
11 I think DG COMP comes from a very market first perspective. Like, we integrate renewables into the
12 system, there are lots of market distortions and stuff like this, and they have pushed this approach
13 without considering the fact that we do need to achieve our renewables targets. And they are
14 actually of the opinion that they do not need to take into consideration other policy goals when they
15 determining the state aid guidelines or the national decisions. I would encourage you to talk to
16 [Expert 005] from [...].

17 Q: OK! Because I'm talking to [Expert 003], who was working before on state aid but I didn't manage
18 to get anyone from DG COMP now, who's working there now. But [Expert 005]...

19 E002: [Expert 005] might refer you to somebody else [...] but this is an issue that [...] and others have
20 looked closely at. Because what we were always trying to tell DG COMP is "you cannot just look at
21 this from a market perspective", you need to integrate other goals of the Treaty, and one of those is
22 environmental protection, Art. 192. And even in energy, it was the aim of the energy union to
23 promote renewable energy and the achievement of climate protection. And the state aid guidelines
24 and principles need to promote that, not go against it. Their simple approach is, you know, we don't
25 have to take this into consideration. And there's actually a very disturbing European Court of Justice
26 case that somewhat supports that position... I don't know the exact....

27 Q: Isn't it that very famous one... PreussenElectra? Or is it another one?

28 E002: That's more about the market. And that is... a lot of that, I think that plays into it. It certainly
29 plays into it and they have certainly been fighting against it. Because, I mean, PreussenElectra
30 basically said renewables markets are too different and renewables still faces a competitive
31 disadvantage, so it's Ok if you have distortions with national renewable energy support policy. And
32 eh...

33 Q: So yeah I mean I cut you, I'm sorry

34 E002: No, it's still all very relevant. So I'm talking about the investor certainty but this is more about
35 the substance... this is I would say the mantra that DG COMP had, which is not helpful for renewables
36 development.

37 And.... I think... once DG COMP they realised that not just PreussenElectra but Aalands and this other
38 case from Belgium on the GoO issue, they then started blackmailing. They started using other tactics,
39 like discriminatory taxes and they blackmailed Germany by attacking all their subsidies to industry, all
40 the exemptions from the EEG umlage, basically to move towards tendering processes. To actions and

41 tender to implement the state aid guidelines. And Germany has moved, I would even say has been a
42 leader in the class in implementing this.

43 Q: Yeah, yeah.... It was strange, I mean, it came as a surprise for many people, because they had kind
44 of pioneered the feed-in-tariffs...

45 E002: Yeah, exactly... so... and I think when you actually look into the substance, the state aid
46 guidelines are not sufficiently clear enough. And eh... I think there has not been a very eh... the state
47 aid guidelines were always intended to create more certain investment conditions, right? Member
48 States would have guidance on how they develop their support schemes, and whether they get
49 agreed upon or not and eh... this was never sufficiently clear. The only the Commission, in DG COMP,
50 was really focusing on was, like, moving towards a tender or competitive bidding. So that's the
51 substantive part. I think procedurally it has created a lot of problems, mainly because the state aid
52 guidelines and the way that DG COMP goes through their procedures to get support schemes passed
53 or agreed upon by the Commission is very non transparent. Once a mem... you don't even necessarily
54 know if a Member State has notified a support scheme to the Commission... and even if they will tell
55 you they have, the Commission won't tell you anything about it, and the Member State it isn't really
56 obliged to either. Although the MS is not prohibited from telling you about it, they just say "we're
57 not supposed to say anything".

58 So, when you have these types of things going into the process, it creates a lot of investor
59 uncertainty. I actually saw this, again, it was with community energy... the concrete example is that
60 cooperatives in the UK have been able to invest, the individual investors in a cooperative have been
61 able to invest in income tax saving. It's called EIS scheme, and it was very good, because basically it
62 told citizen investors that if you invest in like a social oriented company you can get a benefit on your
63 taxes. And then the government said we won't take it away or whatever, so they were really clear in
64 communicating how they were doing this. And then they send something to DG COMP, nobody knew
65 what was going on, and it completely stopped like any new development, simply because nobody
66 had an idea of what the hell was going on.

67 Q: So this has actually had an impact on your members' investment? Have they kind of stopped
68 investing, or...

69 E002: Yeah, but then what you see after that is that nobody is investing because they have no idea
70 what they can expect. So, they have no visibility, that's bad for investment. Then, after the decision
71 comes out, you have a race to get into the... to receive the benefit before it ends. So then you have
72 this whole rush of investment and then just completely it falls off a cliff. And that's really not the way
73 you want to be promoting investment in clean-tech or renewables. So the whole way this thing is
74 designed is not very efficient.

75 Q: So, for you, as you said, there is really a incoherence. SO you think the guidelines in itself are
76 creating a strong backlash, or are they stopping, are they going against the 2020 or maybe even
77 2030 or really long-term Paris objectives? I mean, maybe there was also other things...

78 E002: They're certainly not helping, that's not their aim. And this goes back to what I said before, the
79 whole philosophical and practical approach of DG COMP is not that renewables help meet the Paris
80 objectives, it's simply to ensure that support schemes comply with the treaties in terms of
81 competition. That's it. They don't care about the climate or the environment. They don't want to,
82 and they will fight against this until they are told that they have to. And this is backed by, this is

83 backed by a [...] So there's that, and then there is the way that they actually implement it in practice
84 does not create a favourable investment environment.

85 And then, the third thing that I wanted to mention is more about, like, citizens and communities, so
86 our actual members. I mean right now... because renewables are reaching a saturation point in
87 Europe, so lots of people they are... they don't like renewables anymore, they want it to stop being
88 developed, even in Denmark... in Denmark you have lots of people who are protesting new wind
89 projects. And a lot of that is because they... The market has become so professionalised and
90 competitive that the citizens, who were originally the ones investing in this, have been pushed out of
91 the market, and now you have state aid guidelines which tell MS that they have to adopt a certain
92 way to grant support, in a way that inherently conflict with the way citizens raise finance to
93 participate in projects. So competitive bidding is not appropriate for everyday citizens or community
94 project members. They simply aren't. And... currently the guidelines don't acknowledge... they
95 acknowledge like small installations but they don't acknowledge the need for citizens to participate,
96 or even communities, even though this type of entity has existed for a long time. And, I guess this
97 relates back again to their philosophy, which is they don't want to... they want to ensure, yeah,
98 competition, which is all fine and well, but they also need to ensure that they are allowing people to
99 come into the space to ensure public support and public acceptance and a level playing field, to be
100 frank...

101 Q: Yes, cause now, I mean –it is a really a stupid question- but I am thinking about competition... So,
102 let's say, I see it from your members' point of view where maybe they raise the money and they start
103 producing, but... maybe as you have actually big companies now winning the tenders... Doesn't the
104 tender in itself in the end create a disbalance in the market...? You know, the big players get
105 subsidies and the smalls like you don't get it anymore...?

106 E002: Yeah, and you've seen this in Germany, because eh... because you... I'm sure you have heard of
107 all that nightmare stories that happened with the onshore wind tenders and the citizen energy
108 companies. But if you look at onshore solar, ground-mounted solar tenders, the situation is quite
109 different. You have no dedicated framework for citizen projects, you only have a threshold of 500kW.
110 So under 500kW you don't need to participate in an auction, if it's above 500kW you must. And you
111 have had now 9 rounds of these tenders. In the first 4 of those tenders you had 2 successful rescops
112 winning and after that you have none. And the reason is not because they could not win, it's because
113 they stopped participating. [...] they just said, we will just make small projects because there is no
114 way for us to participate in something bigger. And so, this discriminates against them, because they
115 have the potential to develop more, to develop larger projects, but it's not very cost-effective
116 because they could be gaining a little bit in terms of economies of scale if they could make bigger
117 projects, but they can't, so... so there's a real problem here. So, that's what I would say.

118 And, but, that isn't to say that the state aid guidelines don't have a precedent for doing this type of
119 acknowledgement. The agricultural state aid guidelines, they actually they actually have some
120 exemptions for agricultural cooperatives. So there is precedent for looking at different types of
121 market actors, and having some kind of acknowledgement under the state aid guidelines to ensure
122 that they maintain a level playing field. It's just that the environmental state aid guidelines haven't
123 done that so far. So yeah, we'll be looking to the next round, to see how it goes.

124 Q: Yeah, well now they are going to be revised again I've heard...

125 E002: Yeah, they will start this year, apparently. So it will take 2 years. It will be like some mini-clean
126 energy package.

Expert 003

1 E003 : I was not aware of this. Of course, it's clear that renewables support was so generous, and not
2 really targeted, market-based, that some... that the Commission felt the need to somehow object
3 about this aid. Spain is of course the main example, where things got a bit out of hand in terms of
4 support. And then you got this indeed terrible thing on the ex-post changes; which is really bad
5 policy, you shouldn't do that. And so, from DG COMP perspective I'm sure that one of the main
6 drivers -even though I was not there at the time (it's probably worth verifying that with somebody
7 else) – but... was to make the aid more market-based, more based on competition, and based on...
8 and therefore the introduction of the tenders, which I think that the colleagues in the unit are quite
9 happy with the success that the tenders have had, and they also feel that they are partly at least
10 responsible for their success -so they claim it as theirs, even though of course nobody else will, but at
11 least for them it's nice to see that OK this has been making renewables much more cost-effective.
12 And you see now in the news, every other week, auctions clearing at very low prices or even support-
13 free -windfarms..

14 Q: Well this was the example like in the Netherlands I think, some week ago, but now I was just
15 reading something on Germany, where they were saying that -well, it was technology-neutral
16 tenders- where actually the support was much higher than the technology-specific, so there is a
17 whole on that...

18 E003: Yeah, but that's the debate...

19 Q: [Laughs] I don't want to frame your answer, because that's what I'm doing now...

20 E003: [...] there's always the question of baskets, and to what extent you can have baskets, and to
21 what extent you can do technology-specific. So I think in the Netherlands they have everything in a
22 basket except offshore wind, so there is one technology-specific [...] but this is one of the main
23 discussion points in all of the RES support schemes that have been notified to DG COMP, the
24 question always being: Should we do it in tech... How, to what extent, is technology-neutrality, is it
25 just a dogma, an idea, or is it... to what extent can you actually... of course, it makes sense, no?, from
26 a purely academic perspective, to put everything that can compete into competition with each-other,
27 because only then you get the most cost-effective outcome. But if there are some that are obvious
28 losers, they are never going to make it, but nevertheless there's a good story for supporting them,
29 like the pre-2008 guidelines, where you just say: OK, what is the common objective of the measures?
30 We really need this type of technology, then... there're plenty of decisions whereby such exception is
31 accepted... when the exception to the rule of technology-neutrality is accepted by the Commission.
32 So if the MS comes up with a good story, I think the Commission is not dogmatic about it.

33 It's the same in capacity mechanisms. So the capacity mechanisms are also another chapter in those
34 same guidelines, so also more or less the same people, obviously the same heads of unit dealing with
35 the cases, and always there is the question: How are we going to ensure security of supply? They are
36 going to pay generators -if Germany says "we are only going to pay lignite" or "we are only going to
37 pay coal", then the Commission says "no, you should do it in a technology-neutral way". And there,
38 we see that many MS have now accepted this same idea of technology-neutrality to the extent it's
39 possible, of course. It doesn't make sense to include somebody because they cannot contribute to
40 security of supply, then it's fine if you exclude them. But in principle technology-neutrality is one of
41 the key principles of these guidelines, throughout the entire guidelines.

42 Q: Just out of curiosity, for capacity mechanisms, what is being funded currently? You have any idea?
43 So, who's getting this... in terms of capacity mechanisms... you put the example of coal or... you
44 know... So, it's technology-neutral... what has been chosen now? ...because I haven't been
45 following...

46 E003: So, in principle, it's the same as in renewables: we don't care. So the Commission does not care
47 as long as the methodology is good, the approach is good. Indeed, what happens -just as in
48 renewables: a tender takes place, the MS ask "who can give us for the coming year -4 years ahead
49 they do it, mostly- who can give us, in 4 years' time, secure capacity? And defining then also
50 "secure", not too intermittent, as you [...] if you're intermittent then you're derated, then you put a
51 bid in, and then the MS simply lines up the bids and the most... the cheapest one gets selected with
52 the clearing price. Of course not everybody receives...

53 Q: And... just to come back to my general question: so, do you think, maybe seeing it with some
54 hindsight after some years, these guidelines from 2014, do you think they have influenced the
55 development of renewables in some way? Or would things have been equal if they hadn't been
56 there?

57 E003: I agree with you that probably one of the main drivers was the cost question. So, in that sense I
58 think they have been successful in driving the costs down... if something gets cheaper it's also that
59 more will be build on it, no? So you see that in that sense they has been a very good development,
60 also the amount of renewables... but check that also with the DG ENER reports. But I think that's
61 overall the impression. So, in that sense, it achieved the goal... making the... also decarbonising the
62 electricity sector, but also at a lower cost. That's precisely what a tender has to do, no?

63 Q: And apart from the cost, so about the capacity installed, you don't know...?

64 E003: I don't know the figures, but it's clear that it's really a lot, especially in Germany. And of course
65 the more generous the support scheme is, the more capacity you will see built. But -I come back to
66 the capacity mechanisms, which I do think is important there- the more renewables you have, the
67 more intermittency you have in the system. So, the less reliable the system, the more difficult the job
68 of the TSO becomes, and therefore the more important also the need still to have still some fossil to
69 generate there, that are reliable [...]

70 Q: But this... let me criticise this [laughs]. Many people say "ok, this is actually based on an "old" view
71 of the market..." where now you have IT, ICT, you have new tools, you have demand response, which
72 in the end will make fossil fuels obsolete.

73 E003: We're not there yet...

74 Q: But still, there is also a trade off... you know, capacity mechanisms kind of are halting this
75 development, you know? So... I don't know...

76 E003: Yeah, yeah, of course, we need to take that into account. Capacity mechanisms need to be
77 phased out as soon as possible. So you can only have a capacity mechanism -and the European
78 Commission is very critical on it- if you can demonstrate that you have a true security of supply
79 problem. The capacity cannot be build from one day to the next, so they have to demonstrate the
80 necessity of the... the objective is security of supply, and there needs to be a need to support
81 somebody to achieve this, the security of supply. And then, to get rid of it as soon as it's not
82 necessary anymore. So, indeed, hopefully at some point -and that already has to be taken into
83 account in the calculation that the Member States show, the scenarios- that at some point

84 renewables improve, they also supplement each other. There will be an increase in demand
85 response, indeed, it's very important –[...]nowadays it's not happening so much yet. Better market
86 rules are going to have a big impact, the market design initiative, because they make -they give for
87 example balancing responsibility to renewables, which means that they can much better... they have
88 an incentive to much better forecast their output. And also to avoid imbalance penalties to ensure
89 that they can actually deliver much more reliable electricity to the grid. So, when all these problems
90 are being solved -we are talking about years unfortunately- then you can get rid of the support for
91 the coal-fired power plants. Because indeed, as you asked who was winning the capacity
92 mechanisms, auctions, it is the dispatchable -also some batteries win...

93 Q: Yeah, yeah, you said that the intermittence... if they get derated, then well...

94 E003: They get derated a lot, they get derated by 80%... the bid is divided by 5, but that is their
95 reliability. You need the capacity mechanisms precisely for when they do not generate. But then they
96 also contain specific support, for example longer-term contracts; you get a 10 year contract for
97 example for new capacity, which is usually cleaner than old. Batteries, demand-response, they can all
98 participate in the auction, and they can therefore also get longer-term contracts than the existing [...]
99 And they are winning now also in the UK, they are winning, that's very good, because that's they way
100 it's supposed to go. So even if you do demand-response, you still get support from the capacity
101 mechanism, as you are part of the solution.

102 Q: That's really interesting, because I hadn't really looked at demand response up to now, so maybe I
103 should integrate in my...

104 E003: Well, for sure you will be looking into the future, and then demand response [...] So MS often
105 did not include it, and now they start including it -in the capacity mechanisms, that is, not in the rest
106 of ...

107 Q: Yeah... demand response... I mean capacity mechanism. I'm still sleepy! I had a question and now
108 it went out of my mind... So, at the beginning you challenged me in saying "so you presuppose that
109 DG COMP should take into account other objectives"... So, according to you, they shouldn't? Do they
110 do? Or how does it work?

111 E003: They do, but in the context of the guidelines, which are agreed also with the MS and also with
112 the other DGs, so there is... there are certain things you need to prove in order to give somebody
113 state aid. The measure needs to be necessary, needs to be proportionate, appropriate, but it also
114 needs to contribute to a common objective. And there, the policy comes in place, because there a
115 common objective of the EU is to decarbonise the economy basically. You have the 2030 goals, the
116 2050 goals... So, there, when a MS stays "I want to get rid of... I want to move towards a greener
117 generation mix" that is certainly a very good common objective. And so you pass that test. And then
118 there are the other tests of the necessity [...]. In that sense, it's integrated into the state aid
119 assessment. Your objective cannot be "I want to increase the demand of coal and [...] in the
120 generation mix" -it cannot be.

121 Q: Ok, but normally when you say "common objective" you think about a very general objective? So
122 just "promote renewables". But not "promote renewables so that in 2050 we have 100%
123 renewables" for example? Or 80%, which is what is in the roadmap...

124 E003: Of course that is eh... if the MS then also has an energy plan, whereby it says "so this is our
125 strategy for the coming decades" that implies that we need to have so much renewables if we want
126 to meet our Paris pledges, then this is what we need to do. And this measure helps us in achieving

127 that. It can still be nonsense what they say, but eh... it's always tested, but if that is their objective
128 then they have a very good chance of passing...

129 Q: And this is checked when DG COMP...?

130 E003: Yes, yes. So you have in a state aid decision always two chapters. Well, one introduction, and
131 then there is one that describes the measure and one that assesses the measure. So, in the
132 description you basically say what the measure does, how you can participate, how much money is
133 going to be spent; and then in the assessment you check whether it is in line with the state aid
134 guidelines or other topics -in this case the environmental aid guidelines. And then you just simply go
135 through the guidelines, point by point, saying "ok, is there a common objective"? "The member state
136 says there is, because they want to support renewables", the Commission agrees that this is a
137 common objective in the sense of article 2?, so...

138 Q: Ok. So actually it's relevant what MS has set up at national level, like the climate and energy
139 plans...?

140 E003: Yeah, because it reinforces their story. You cannot just say out of the blue, "I think this is
141 good". Because often there is something else behind it. Now, the schemes that you see, they are
142 approved, they are an end-result of long discussions. I mean, they are also only the schemes that get
143 through. It's not often that the Commission takes a negative decision. Usually, if the Commission
144 doesn't like a measure that is being proposed, nobody will ever see it, because the MS will get an
145 idea that the Commission is not very happy with it, that it is not in line with the guidelines, and
146 therefore it won't even formally notify it. So the measure get... dies basically in the pre-notification
147 phase.

148 Q: And how do... also because I don't know... I mean, state aid is really something I didn't really work
149 on... how long does it take from the pre-notification until the decision? How long can it take?

150 E003: That depends on many, many things. But the fastest way is that a MS has already a very good,
151 well developed scheme in place, then you can just have a single pre-notification meeting, or even just
152 some email or some telephone call for instance. They submit everything that they should notify, they
153 submit it as a pre-notification, and we can check it then, in two weeks or something, and then we
154 usually invite them to notify. And when the Commission invites you to notify it usually means that
155 the measure is already more or less acceptable. It really means that you intend to draft a positive
156 bidding, maybe with a positive decision. There may still be some points being raised, or the MS may
157 be asked to make some small amendments, for example, include this in this basket and that in that
158 basket, but not major...

159 But those are the big schemes, they are being... they're usually in line with the guidelines because
160 there are so many precedents, and then MS know what to do in order to get the measure approved.
161 They need to make sure... they know they need to make it technology neutral, they know there is no
162 way they cannot have a tender. They can not just say "you get [...]" so it's easy to get them.

163 Q: So it can take some months...?

164 E003: So indeed, the process takes... let's say... four or five months, still. But this is because within
165 the Commission there are many hurdles. So even if the... you have to... you have a legal deadline of
166 two months, you can stop the clock by sending a request for information, at least one request for
167 information is sent, and then the clock starts ticking again. But in the fastest... let's say it's super
168 urgent, something needs to be done super urgently, then you can already have the decision ready at

169 the day the MS notifies and you send it into interservice consultations. Well, it depends on the
170 importance, you also have to go to your own commission, in this case Commissioner Vestager -or at
171 least her cabinet- they give you the green light to launch the interservice consultation and then [it is
172 there] for 10 working days.

173 Q: OK. I didn't now it went through the interservice consultation...

174 E003: Yes, even though it's DG COMP, they still need to go through the interservice consultation.
175 Consult the relevant DGs, not all, the most important ones, so the legal service, and then in this field,
176 of course DG ENER, DG environment, DG clima. They are asked their opinion, so they are usually
177 positive or positive with comments. Then you can close the interservice and you can launch the
178 adoption procedure. It takes again a couple of weeks, and then there can be translation as well. And
179 this of course makes it slower. You write the decision in English, and then it gets translated, and then
180 they need to check the translation, somebody in the DG needs to check the translation.

181 Q: Ok, great, thanks, because it's true that this is also important... And, I mean, thanks a lot [...]

Expert 004

1 Q: So, basically...how does it work? I just have this really general question, and you just give me your
2 point of view. So it's basically about the coherence. I know you have studied the efficiency of tenders
3 itself, but I am sure you also have a general point of view about the general coherence of the thing.
4 So, is it helping, is it not helping, to reach the long-term goals we have set ourselves for 2030 -well, not
5 yet, but we should set ourselves to respect the Paris agreement. Because for 2020 -you can also give
6 me your point of view- it looks like, from what I have read and so on- that we are on track even with
7 the tenders, so... So, just a bit your point of view on... the background you can give me on this...

8 E004: Generally speaking, indeed most MS are on track for the 2020 targets. For 2030 and beyond -
9 because I mean I guess there is a big debate whether the 2030 targets are sufficient to reach the Paris
10 goals, which in my view in their current form they are not- I would say, I wouldn't pay too much... well,
11 I see that in the debate there is a lot of focus on the instruments you use, so if you say -you ask "are
12 tenders the right instrument?" then I would say it also depends on what goals you set. I mean,
13 obviously if you tender high volumes, then it's feasible to reach high goals. If you don't, you don't. So
14 I would see this independent of the targets that you set in terms of renewables deployment. So I think
15 this is maybe a first thing to consider.

16 Generally speaking, whether tenders are a good instrument... I mean that was obviously quite intensely
17 debated... I would say they really have their strengths and weaknesses. The strength, what we have
18 seen, is that the cost has come down quite significantly. It's fair to say that this hasn't been only the...
19 because of the tenders, because also the cost of renewables has come down, I mean this was especially
20 obvious in the case of offshore and PV I would say... On the other hand, I also think the tenders helped
21 to trigger that and push that forward. So, in that sense, I think they do help to reach renewables targets
22 because in the end the low-cost also helps the society and helps the consumers. There are of course
23 concerns on whether this is sustainable, and I think that remains to be seen, because there's strong
24 competition and only a few actors are left in the competition, that can also be negative. And you
25 probably heard if you talked to actors like renewables' cooperatives, they are quite worried that they
26 can't develop their projects anymore, and also the acceptance of renewables will suffer. So I think
27 that's indeed the downside which we have to assess.

28 I wouldn't say it's always the case, or generally the case, because you always have to look at the
29 different countries, where do they stand. I mean, in a way, you see that maybe countries don't really
30 have such a diverse actor scene... I mean, in Germany it was a big discussion, because in Germany this
31 kind of actor was always a big topic; I think in other countries it was less. Maybe there the effect is less
32 relevant. But it's also a bit the question "what are we actually aiming for?" I think, for example, rooftop
33 solar is basically exempted from auctions in most countries under the de minimis rules and in my view
34 that makes a lot of sense because it would be too much burden to put on households to participate in
35 such tenders. I mean then if you talk about professional projects, then you can also say it's fair enough
36 that they should be able to participate in such tenders, because it's a more professional sector... so
37 again my feeling would be it makes sense to look a bit at the actual conditions under which this
38 competition takes place...

39 Q: That's actually... I read... I think it was an article for this year from you -I just don't have it now- but
40 where you were saying that this actually depends on the design of the tender, how well it works and
41 how well it doesn't... I don't know if I got it correctly, but...

42 E004: Yeah, I think the design can make quite a difference. If you put high financial requirements, like
43 high bid bonds, that usually scares away bidders... and in other cases, I think it's more feasible... but I
44 guess -to some extent that's what we saw in Germany- was that it's a general discussion on what are
45 you actually trying to protect: whether you follow the discussion on community energy rules in
46 Germany, that's not very fortunate... Because I think there they try to preserve a very specific business
47 model which was then kind of also exploited by professional project developers. Now the [...] was
48 stopped, but I think there was to some extent an almost romantic idea of what is community energy.
49 So I think there you have to ask yourself, well... why do you really want to protect certain actors? If it
50 increases acceptance, I think that may be a fair reason... but then you also have to see what really is
51 going to be the acceptance locally. I mean what we saw partly it's also, it might be smaller projects are
52 more acceptable but not always... there is not only the size of the project developer but also how well
53 they are connected in the local region... whether they get support for developing wind projects...
54 anyway, it's mainly a challenge for wind onshore, because PV is less critical in this respect, and offshore
55 is obviously not directly affecting communities...

56 Q: Well, yeah, on the community energy, I talked to [...] and they were quite negative... But on the cost
57 issue, because maybe you can give me some insight on that... there was just a news this week I think...
58 or some weeks ago... I'm losing track... of some technology neutral tenders in Germany, were there
59 were some journals saying... well actually in the end the cost was higher than in technology-specific
60 tenders... so well, about the cost debate, it is quite difficult to know how far tenders are actually driving
61 them down, because you have a lot of different narratives... so maybe you can just say some words
62 about that...?

63 E004: I mean, generally speaking, in the ideal case, the best that can happen is that competition is kind
64 of high enough that the tender will reveal the true costs of a project, so which would mean it's basically
65 a cost at which the project developer or investor would still invest and realise the project, but with the
66 minimum margin to do so. This would then be kind of the efficient outcome. But in practice this is not
67 always the case. So, depending on for example if there's less competition, if bidders know there's only
68 a few participating, then they can realise higher prices, for example. And then actually, the case in...
69 what you can see in the Netherlands, for example, is that -especially with onshore in the technology-
70 neutral tender [...] - they don't really face strong competition, because they know the clearing price will
71 be set by other technologies, by more expensive one's... so basically all the wind projects will be
72 awarded in the SD+ tender. And for that reason they can basically ask for the feed-in price and they
73 don't really have to lower their prices.

74 I mean that's not wrong also, but it's just what happens if you see there is not competitive pressure,
75 because then tenders can also bring higher results. And actually what happened in Germany, there
76 was a wind and PV tender together, and I think this was -I am just trying to remembers....

77 Q: I think it was just won by PV...

78 E004: Yeah, it was just won by PV. I mean, wind and PV could participate but only PV won, which was
79 in a way surprising... I mean in the end it wasn't so surprising, because indeed, on the one hand the
80 cost of PV had come down, and on the other hand, there's -for wind energy- there's limited
81 competition in Germany at the moment, because there's not... you know, there's still now the
82 technology specific wind tenders... and I think all wind bidders knew... well, they had an expectation
83 that they could get higher prices because there's not that many sites, wind sites, available at the
84 moment... while for PV the competition was tougher, and I think this is like one reason why you can
85 see that PV won, because for wind didn't really have a reason to go down in price so much... -that's

86 what you see quite often, that was actually also the case between Germany and Denmark, they had a
87 joint tender, we are also surprised, why do the Danish PV plants win compared to the German ones?
88 Again, because Germans could realise higher prices in their national tender while Danish couldn't so
89 they went down with prices... So it's not just a question of the actual cost but also of what prices can
90 you realise with competition.

91 Q: Oh, that's really interesting, thanks a lot! So, if you could, let's say, summarise this all... I know it's
92 difficult -you know- to go for black or white, but according to you, so actually tenders have had a
93 benefit on the development on renewables in the last year, or will have a benefit in the future...
94 Actually it was the best system where we could go to...?

95 E004: I wouldn't necessarily say... I mean it depends what you compare it to, right? I mean, for the
96 developers' perspective, it would be more comfortable or convenient to have feed-in tariffs, at least if
97 they are sufficiently high... on the other hand, you also saw that [...] they didn't provide support
98 anymore because they thought it's too expensive, [so] I think there tenders can play a good role,
99 because they can also create acceptance for paying renewable support, or at least they can limit the
100 support that is being paid... so my feeling is definitely... it's not a silver bullet, and you can't say well,
101 "it's the perfect instrument" ... it's rather... it depends on the context, in a way also, what you want to
102 achieve politically. Do you rather want to have a competitive sector? or do you try to promote -I don't
103 know- new actors or local communities and then maybe feed-in tariffs could be the better way... But,
104 overall, I do think that tenders can also contribute to reaching renewables targets if they are designed
105 correctly and if you have some planning certainty. I think then they can still be a good instrument, even
106 if are not that popular. And -by the way- what you saw in the last German wind tender, was that even
107 when they cut the community energy privilege, there was still community projects winning in the wind
108 tender. So again, if they have good sites or good projects it's also feasible for community projects to
109 participate. But it really depends a bit what you are talking about. Probably if you talk about small PV,
110 they may be a bit more difficult... But I think for wind community projects I think it really depends how
111 tough the competition is...

Expert 005

1 E005A: You will get from us an answer that is probably more in the legal context, and rather... we don't
2 have the perspective as such, from the renewables sector, because we are not working in the
3 renewables sector, but obviously we know what demands there are. Our work is about doing the state
4 aid guidelines and changing them, so the answer already from the beginning is very simple: we would
5 not want to change them if we would say that it's actually allowing the changes that are necessary in
6 the energy market. And... I think, in particular, with regards to the renewables, the issue is not
7 necessarily that... the guidelines, I mean, in a way, the guidelines are quite... they have now a stricter
8 approach to renewables that there were in the past. In the past it was much more easy to get an
9 approval, now you have to follow certain strict rules: you have to have a bidding procedure, in principle
10 you need to have technical neutrality... and... of course you have certain exemption, etcetera, but that
11 is making it a little bit harder. The guidelines are also now including a sentence, it's actually more an
12 introduction, it's not one of the paragraphs, saying that somehow in the future probably there should
13 be less or even no support for renewables because the general vision of DG COMP seems to be they
14 don't need support anymore, they will not need support anymore, they are basically fit for operating
15 in a market as such.

16 Now, for us it's very difficult because we are lawyers, we are not energy market experts nor working
17 in the renewables sector experts, whether this is true or not. We have a tendency to believe that this
18 is not correct, simply because what we are also discussing with our partners -who are working in the
19 renewables sector- and... where it is clear that the kind of investments that are still necessary as well
20 as the operating costs that run afterwards cannot be covered without support, or are difficult to be
21 met without support. And also the insecurity around... which the guidelines create, because it's very
22 difficult to predict whether renewable support will be approved and how it will be in the future,
23 whether in the future the Commission will indeed allow this, has created so much investor insecurity
24 that there may be actually reason for argument to say that the guidelines are, instead of promoting
25 more investment in renewables, and in particular, promoting existing particular EU policies which are...
26 we have a certain renewables target, we should meet this target and the target is not met by most
27 Member States... the guidelines seem to be actually making it more hard to reach that goal without...
28 if you need to do it [...] with public support. So, that is one thing.

29 This is also true, although it's harder to prove, in the area of energy efficiency, which is very much
30 connected, because, on the one hand you could say we focus only on the renewables, but if you want
31 to create an energy market which is functional, then you need an energy market where you also
32 have energy efficiency, demand response, etc. And, considering that, in the last revision of the
33 guidelines, the aid intensities for energy efficiency were decreased, I think that was already a signal
34 from DG COMP that they didn't really understand very much what is going on with energy efficiency.
35 Also, I mean, if you look at energy efficiency a lot of the aid is actually deal with under the GBER, the
36 General Block Exemption Regulation, ehm... which has a limited threshold also... but... it's very difficult
37 for us to... what we know, we have the impression... there are only a few decisions on energy efficiency
38 now. What that can mean is that Member States are no longer granting support for energy efficiency,
39 or it means that everything is put under the GBER, where it's difficult to check for us, because the GBER
40 it's not the same transparency as the guidelines -you don't need to notify. And... but, again, what we
41 hear from our partners working on more energy efficiency, it seem that there is not... I mean, energy
42 efficiency needs a boost, and the boost is not coming, and... we also have seen in certain cases
43 arguments that Member States would like to introduce more interesting schemes but feel as if they
44 cannot do this under the guidelines...

45 Q: This is on energy efficiency?

46 E005A: This is on energy efficiency, but the connection is very important... so, at the moment I am just
47 talking about the question like "ok, look at the kind of design we want" -what we have with renewables,
48 we want to have a bidding procedure- I'm more talking about the question "how much aid can be
49 given" and also what is the signal given to investors coming from these guidelines towards various
50 sectors.

51 Now, going back to the renewables, what is also problematic, and I think -considering that we have
52 been in touch through [...] there is an increasing understanding that energy communities are actually
53 a very important actor in the kind of energy transitions we want. We are not talking about the shape
54 they need to have but simply the fact that these energy communities can help explore the potential of
55 consumers, and local potential, is actually also something which makes many people to believe that if
56 you would give them the space to do this, and the funding to do this, they would actually help us to
57 decrease all of the issues we will be running into in the future, I mean stabilise the market, etc. The
58 problem though is that energy communities sometimes fall... sometimes they do fall within the
59 exemptions -so you may know that for renewables you have this exemption for small installations, but
60 sometimes these energy communities do not fall within this, but you know, you can easily reach that
61 target. And... what seems to be the case now, if they want to participate in bidding procedures, etc,
62 for them the administrative works are very huge, there's also other costs that are very difficult... and
63 so there seems to be a trend that they less and less participating in them, and so not getting support...

64 And it would be better if these guidelines actually would follow what seems to be coming out of the
65 Winter Package... because you need to see there's a big connection between the Winter Package and
66 the guidelines now. And you might have seen, I do not know whether you followed it, we had an energy
67 Council this week, and it seems now that the outcome of this is now that there is a recognition of energy
68 communities, so quite positive. And there's also... it could be that, if the outcome of the Council is
69 going to be followed through the trilogues etc., that we have a renewables directive that is confirming
70 the importance of energy communities, providing its own definition, but also, in principle, telling
71 Member States that they should enable renewables... energy communities. Which means that they
72 need to create a market, they need to create an environment, which is supporting the creation of these
73 communities.

74 Now, if you link that to the state aid guidelines, under the current state aid guidelines, this kind of
75 enabling, if it needs public funding, is difficult to be done. Because if they need to participate in bidding
76 procedure, it's very hard for them. Which means that, if we look at the future guidelines, we will need
77 a framework where a special status is also recognised for energy communities. And I am not saying
78 they should be excluded from notifying the state aid or whatever, but there should be a framework in
79 there which also allows for exemptions specifically for exemptions specifically for certain types of
80 energy communities. So, again, at the moment that's not there, we will need that in the future.

81 The thing is also... we have now... a question that is also very important for renewables is this technical
82 neutrality element. And, I think -[E005b] has been doing quite a lot of research now with regards to
83 decisions on renewables- and [E005b] has seen that, in principle, if you look at the decisions regarding
84 the exemptions... -because, on the one hand you have exemptions for small installations, but you also
85 have exemptions under the bidding procedure and under the technical neutrality- so you can actually
86 go to the Commission and say: "OK, our funding goes to installations which are above the installations
87 which are mentioned in the renewables chapter but the situation is such and such that you should
88 allow for an exemption either to the requirement to have a bidding procedure or technical neutrality

89 or both". Now, it seems that there have been several decisions by the European Commission regarding
90 technical neutrality in particular, and I think you can maybe go on...

91 E005B: Yes, on this, so... As [E005a] said, in principle, the schemes should be technology-neutral. So, if
92 a Member States wants to promote renewable energy or give support to renewable energies they're
93 supposed to make a tender [...] open to all sorts of renewables: solar, wind, hydro, etc. Unless you can
94 justify that your scheme can be not neutral, so you can select one type of renewables, or just a few
95 ones. And what we see in the Commission's decisions under the guidelines is that the Commission
96 accepts very easily that MS chooses to promote only wind farms, only hydro, only solar. You don't see
97 so many decisions on solar power only... there are a few but it's really not the main ones. What you
98 see a lot is windfarms, offshore windfarms in Germany, but many, many, decisions on windfarms, a lot
99 of hydropower in France, and... France has a tendency to promote wind and solar together but hydro
100 separately... and windfarms also, Denmark and Germany are the main countries where you see
101 technology-specific decisions.

102 And what you read in the decisions... again, the Commission decisions is a summary of the Member
103 States argument, so you don't have the whole literature that a Member State provides, so you cannot
104 really check...

105 *[Procedural question on how to search the state aid register, taken out]*

106 Q: How many decisions did you check...?

107 E005B: A hundred or something... But it really shows how the Commission has been issuing decisions...
108 I have been looking at decisions since 2010 mainly, with a focus since 2014 under the new guidelines (
109 so I extended the scope a little bit). You've got many decisions where you've got a big framework
110 decision, and then individual decisions for wind farms. But it's not the most common thing... but you've
111 got over a 120 under the new guidelines, and it's only [...] 3 years and a half, 4 year almost...

112 Q: So you were talking about the reasoning...

113 E005B: So what you seen in the Commission's decision is that the Member States would defend this
114 technology-specific scheme, saying "we need hydro, but we need to develop it in the country..." That's
115 the main argument in France, they say well, we're got renewables but solar and wind are very variable,
116 so we need something stable and renewable as well, so we're going to focus on hydro, and a specific
117 scheme on hydro. And the Commission tends to accept it very easily, they would summarise the
118 Member States' argument but they would not really challenge it, or contradict it, or provide
119 confronting argument to it. So you don't really see the Commission challenging, or contradict, or
120 provide contrary arguments to that. Which I find quite interesting, because its means that it's quite
121 easy to have a technology-specific scheme, which may be good, I am not judging... [...] I'm not saying
122 it's good or bad, but that's what you see... so, it's a criteria that is very easily in the guidelines, so, to
123 what extent it is still interesting to have derogations in the future, or to have this principle of
124 technological neutrality can be discussed as well... I mean if you can always in go the exemptions, is it
125 still a principle? I am only going into the developments, I am not giving an answer...

126 E005A: So maybe the point to be made here is also that, what I would say also, if you look... ok, we are
127 walking towards a new set of guidelines, because there is a cycle coming up... It is true what [E005b]
128 says, there are certain elements in these guidelines where, I would say, instead of maybe starting a
129 discussion on "should we have technology neutrality or not?" maybe let's just rather keep these
130 provisions in there, because the Commission seems to be interpreting them very broadly. Or making

131 sure the Commission keeps interpreting [them] in a certain way, make these provisions much more
132 clear -because at this moment interpretation is possible- another Commission could go in a completely
133 different direction, or indeed, just say, considering that the Commission does this very often -cause
134 they do this with the GBER, see how the Commission has been judging that, and apparently they don't
135 see that many difficulty with technology neutrality, because they seem to be improving this all the
136 time, that you can only focus on one, indeed, remove the entire rule and just say "OK, we want to have
137 a bidding procedure", which from a competition point of view indeed makes sense, to have bidding
138 procedures. Taking into consideration that certain exemptions need to be applied for this.

139 But it's... I think it's an important point to make that, on the one hand, you have various stuff where I
140 would say they need to be changed in the guidelines on purpose, because, you know, it's very
141 important to make sure energy communities have a better position in there. I think, as I said, the link
142 with energy efficiency is very important, making sure that energy efficiency can also get more aid. I
143 also think it is important to provide more clarity around what a good bidding procedure is, and use the
144 kind of experience we have gained around bidding procedures to also enhance the design of them and
145 also have better criteria around that. We should not have a provision in there that renewables support
146 is no longer needed in the future. In particular, I'm sorry, but I think that is not something to come
147 from DG COMP. That is something which... I think in particular it's not in line with what everybody is
148 saying, and also with the conversations that are happening around the Winter Package, renewables,
149 etc. We only recently had a report from the REN21, and yes... I mean on the one hand they say
150 "renewables get support and it's fine"... it's still a continued support is necessary for many of the
151 coming years.

152 So that's all important. But you know, I mean, I think there's also stuff in there where the Commission's
153 practice has shown that it's probably not so difficult to comply with the criteria over the exemptions.
154 And, therefore, it is probably more important to focus on making sure that the Commission changes
155 the elements which I just mentioned, keeps the exemptions to technical neutrality or makes them
156 more clear, or establishes just simply that in the future "we will just be happy if these criteria [are]
157 fulfilled, don't worry, it will be approved from our side". I think that is important, and you can also see
158 in the research you're doing...

159 E005B: On technical neutrality, there's also the point where in the Member State... they would just
160 select one technology, hydro, or windfarms or offshore windfarms [...] I've not come across -I don't
161 think there are not- but I have not come across decisions where the Member State would say "OK, I
162 am promoting hydro and wind farms" at the same time. To me it would make no sense: you are
163 promoting two technologies, why not promote all the other ones? And that's where I think maybe one
164 day the Commission may think the scheme is not in line with the guidelines because... -I've not found
165 decisions, but... because if you select two or three technologies, why not select all of them? So you
166 always see schemes where there is only one technology picked out to promote it, because the others
167 have been promoted or are promoting by themselves, or are developing by themselves... but you need
168 to push one technology up, because it doesn't develop by itself so you need state aid for that one. So
169 I think this is consistent in [Member States'] practice; one question we then have reading the decision
170 is that you observe -that is beyond the technology neutrality [...] in all the decisions of the guidelines-
171 that the Member States always have the same type of scheme. So Germany has like one set of scheme,
172 they would adapt it, they would amend it, but it's always the same aims... France has their own set of
173 rules as well... so it's always EDF purchasing... So they have these kind of frameworks for each country,
174 where each country always presents the same kind of framework to the Commission.

175 And so... One thing we can see or suspect is that the Member State, you know, they try once at the
176 beginning, they see it works, it is approved by the Commission, so they keep on doing exactly the same
177 type of scheme... they assume it will be approved: it's always the same thing, so there's no reason why
178 the Commission would change their mind... One question though is that: to what extent will a Member
179 State one day be a bit more open-minded or, you know...

180 Q: innovative?

181 E005B: Yes, innovative – that is the word I was looking for – and just try to change the scheme and
182 maybe, you know, that France tries the German way of designing the state aids and... because it works
183 as well, it is approved by the Commission, so why not? But then you need to go at Member State level
184 to know why they are taking this position at the state aid schemes... That is not something we are
185 looking at, because we are not going into Member States' design, but I think there are also good
186 question to raise at Member State level: how they use the guidelines, and think, you know, in our
187 Member State we do it this way, but maybe some time we could do it another way that would promote
188 renewable energy [...] So, yeah, you don't really see the Denmark model being adopted in France or
189 vice-versa...

190 Q: Do you see differences from one technology to another? I mean, [...] does the Commission look
191 differently at different technologies?

192 E005B: I don't have this impression...

193 E005A: I think [...] what they seem to do is sometimes, with certain technologies, is look at the question
194 of energy security. So, in how far can this certain technology – or rather the source of the renewable,
195 so for example hydro... we have a more stable, less flexible resource than with wind and solar. So the
196 argument of the Commission can be, in that case, "OK providing it only for hydro in this area makes
197 sense... but it also makes sense because hydro, in certain moments, could be used for base-load. And,
198 so, that is where you sometimes see the difference.

199 But, as [E005b] also said – because we can only read the decisions, we don't know all the conversations
200 that went in the background – but it also looks like... it looks a bit like all renewables seem kind of
201 equal, which is kind of funny because – even though I'm not a renewables expert, I understand that
202 it's not... and so the exemption which I saw, if you go to hydro, they made this surprising statement
203 which is correct: hydro can sometimes be more stable than others... they don't go into that question,
204 but I think they should. Because, you know, if you would start going into that issue, then you would
205 also have other arguments for saying "OK, we might actually need technical specificity, and not
206 technical neutrality". And one thing also – because I mean where I would see a little bit of difference
207 with regards to schemes where you then for example have three renewable resources which are
208 promoted and maybe the others are not... is if the Commission goes into it from a different perspective,
209 and also looks at it from the kind of point of view of where is the region where this is being promoted?
210 What are the resources around? Then you might end up in a situation where you actually have... where
211 you say you don't want to promote this because it makes absolutely no sense in this region, but
212 therefore you can make this decision.

213 E005B: You can always also expressly exclude one technology, that's the recent decision of the
214 Commission over the Belgian strategic reserve in February. So Belgium adopted a strategic reserve and
215 they excluded nuclear power from participating. So, [...] can participate, demand-response, coal, but
216 nuclear is excluded. The reason why Belgium needs a strategic reserve is because the nuclear power is
217 not reliable in Belgium.

218 Q: This is actually a capacity mechanism...?

219 E005B: Yes, this is a capacity mechanism, exactly [...] And... Belgium also imports a lot of nuclear power
220 from France, I think 2015 or 2016 there was a similar decision... so a few years ago France also had a
221 problem to supply nuclear power to Belgium because of restrictions. So Belgium actually though,
222 assumed "maybe one day we will face this situation of scarcity of supply because nuclear power is not
223 reliable". So it's definitely excluded from the scheme because it makes no sense... so that's the one
224 decision where they exclude one technology...

Expert 006

1 E006: I don't know... I mean, our objective is, as an organisation, is to have a better integration of
2 renewables into the market, and we do believe that most of the technologies can become competitive
3 in the market already. And, on top of that, the cost has significantly decreased in recent years, so, one
4 more reason to get them integrated into the market. We believe the Clean Energy Package is going
5 into that direction. We are quite curious to see what the Commission will do now with the State aid
6 guidelines, but, yes, we would like to have certainty in this regard up until 2030 as well, so to have a
7 stable investment framework for renewables.

8 I think our concerns were mainly about some exemptions for certain types of installations into the
9 state aid guidelines, as some, I think, I believe, have been kept to an extent in the Clean Energy Package
10 as well, so we'll see how that works... But, at the same time, if you look at what is happening in the
11 field, many MS are organising auctions, and prices have decreased. Now that the 0 euro auctions –
12 sometimes... I mean it's good, but it may be misleading depending if for instance if the networks aspect
13 is included or not, this can have bearings on the outcome- but... yeah, it's our hope that eventually the
14 auctions -I mean- the system will deliver and that renewables will be integrated.

15 Investment is something we are looking into at the same time, because our members who have -I
16 mean, the auction system does not necessarily seems to be sufficient to all, so we are looking at other
17 ways to promote investment. But not only in renewables, and that's the thing, in generation, but also
18 network, storage and all that, that would be of course compatible with market mechanisms.

19 Q: Could I... sometimes I ask questions [laughs]. So... from the point of view of your members... so,
20 you said, for some it wasn't beneficial, for some others it was...? Have you seen -I know it's really
21 difficult to measure- but have you seen some kind of impact of these guidelines on the investments
22 your members have been doing -or not doing...?

23 HL: It's hard to say... the impact of the guidelines as such... I mean it does at least -I mean, MS can move
24 forward on that basis, so in that sense some certainty... Like I said, now we are looking at 2030 and the
25 guidelines are 2020, we have the Clean Energy Package -at least the renewables directive has been,
26 the negotiations have been, finalised- so we would like that bit to be certain as well. There are auctions
27 organised by MS, and our members have won some of those auctions, so it's definitely a good thing.
28 But I think there is maybe a need for other types of instrument... but our members are very -you know-
29 we look for certainty in the long term, in price-signals, in investment framework, in stability, so that's
30 the crucial element in that. So it's a good thing as well that the renewables dir -the Clean Energy
31 Directive, ensures that you cannot revisit existing arrangements -there was potentially also a big
32 problem... but yeah, I think we are looking for certainty and stability.

33 Q: So, but you feel like, as things are now, you have this certainty? Or...?

34 E006: Not quite enough I think... I mean I don't have updated figures now, because we are looking at
35 the volume of investments that are needed, so we're certainly talking about big amounts of money,
36 and so that's...

37 Q: So you are really actually waiting for what will be happening with the revision of the guidelines?

38 E006: Yes, that's really an open question that we don't like very much, because you don't know what
39 will happen. I mean, I don't think the Commission is keen to make many changes to it, because
40 the...They have been only implemented for a few years after all, so I don't think [they]want many

41 changes to that. But it would be good to know, I mean, if you [...] with changes it's never really
42 good... but, yeah, I don't think our members think that the system, as it is now, is sufficient to trigger
43 the amount of investment that is needed -let's put it this way.

44 And, like I said, it's renewables, so generation aspects, but it's also networks, it's also storage, and
45 also new business-models and products for consumer-driven investment, so it's really the big picture.

46 Q: Yeah... and you said, so "it's not sufficient"... If you were God and could put things right the way
47 you wanted, what would you like to see in the next years? What kind of systems, other kind of
48 financing mechanisms, market set-up, which is different... whatever?

49 E006: Definitely we would like the market to work and to send the appropriate signals, I think that
50 would be the priority. I think it will work in certain conditions, I mean, we are still... you have power-
51 purchase agreements that are being concluded, you have corporate-power agreements (although
52 some have some kind of support as well, so it's not only market driven). But yes, ultimately we would
53 like the market to send the right price signals for investment, that would be the objective.

54 But, also, closely connected to that, the ETS [...] also be a driver for investment, with the right signal.
55 I mean, the prices of the allowances have increased a little bit, I don't know if it can go much further
56 than that, especially now that we have a higher RES target. It will have a negative impact on the
57 allowance price. But I don't know whether the Commission will look at for instance updating
58 commitments to the Paris agreement, because it would represent [... 45%] emissions reduction
59 target, so we'll see whether there are some moves in that direction that will impact the ETS [...]

60 But definitely we will be looking at, preferably, at a market-driven investment environment, and, if
61 interventions are needed, market-based mechanisms would be our preference.

62 Q: And... this is more... maybe a more elaborate question already... I know you have the problem
63 where you have different kinds of generation, trying to balance the views, it's not so easy... But the
64 issue of marginal pricing, I mean the way today investors today recover their money through
65 markets, is that fine for you...?

66 E006: Well, not really. [laughs] Well, I mean, in some cases the wholesale prices are very low, in
67 some cases you have negative prices, and 0 marginal prices for some kind of technologies, so it's a
68 very difficult world. On top of that you have political decisions to phase out certain type of
69 technologies, in some countries they are prevented from actually closing down some sites... so, yeah,
70 it's not exactly and ideal... there are lots of interventions into the market.

71 Q: So you think that if there was no intervention at all maybe things were better?

72 E006: I don't know.... I mean, it's a very philosophical question...

73 Q: Yeah, academic work is always a bit philosophical...

74 E006: Yeah, I get that, but at the same time you have to be realistic; we have targets on the table; we
75 have never been keen on the multiplication of targets and would have preferred the ETS as a driver,
76 and we still prefer it, but we have renewables target, non-binding energy efficiency target, and
77 there's a political reality, and even the commitments of some companies that would prefer to have
78 higher targets, and that have taken commitments not to invest in certain technologies, to phase-out
79 certain technologies, I mean in line with what is going on in their [main] country of origin.

80 As a sector we have also committed to decarbonise well before 2050, also committed not to build
81 new coal plants after 2020, so you know, at the same time, it's... where is the theory and where is the
82 practices for everyone...? I think there is a bit of realism principle that "ok, we prefer things to be
83 different but try to make the best out of what you have"; so if you choose a certain system, at least
84 ensure that you know, there is certain consistency and that you do not make things more difficult on
85 the choice you have made.

86 Q: So actually, if you had to choose between... so "it's not really coherent" and "the guidelines are in
87 line with the general political objectives" so.... What would you choose?

88 E006: ... we are where you could expect with the framework I suppose, I would say....

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